Service Manual

Service Manual
KF350

Model : KF350

REVISED HISTORY

Editor	Date	Issue	Contents of Changes	S/W Version
J.P.Kim	Jul. 18. 2008	0.1	-	

* The information in this manual is subject to change without notice and should not be construed as a commitment by LGE Inc. Furthermore, LGE Inc. reserves the right, without notice, to make changes to equipment design as advances in engineering and manufacturing methods warrant.

* This manual provides the information necessary to install, program, operate and maintain the KS360 Series.

Table Of Contents

1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of the KF350.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges you're your telecommunications services. System users are responsible for the security of own system.

There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. LGE does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. LGE will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the KF350 or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the KF350 must be performed only at the LGE or its authorized agents. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

- 7 -
LGE Internal Use Only

E. Notice of Radiated Emissions

The KF350 complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

An KF350 may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contains Electrostatic Sensitive Device(ESD), are indicated by the sign.
Following information is ESD handling: Service personnel should ground themselves by using a wrist strap when exchange system boards.
When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded. Use a suitable, grounded soldering iron. Keep sensitive parts in these protective packages until these are used. When returning system boards or parts such as EEPROM to the factory, use the protective package as described.

1.3 ABBREVIATION

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
CLA	Cigar Lighter Adapter
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli-watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
EGPRS	Enhanced General Packet Radio Service
EL	Electroluminescence
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIB	General Purpose Interface Bus
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode

1. INTRODUCTION

LGE	LG Electronics
OPLL	Offset Phase Locked Loop
PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
DCXO	Digitally Controled Crystal Oscillator
WAP	Wireless Application Protocol
8PSK	8 Phase Shift Keying

2. GENERAL PERFORMANCE

2.1 H/W Feature

Item	Feature	Comment
Standard Battery	Li-Polymer, 800mAh	
AVG TCVR Current	270mA typ	@PL5
Standby Current	2.3 mA typ	@PP9
Talk time	3 hours (GSM TX Level 7)	
Standby time	Over 250 hours (Paging Period:9, RSSI: -85dBm)	
Charging time	Under 3 hours	
RX Sensitivity	EGSM : -105dBm↓, DCS/PCS: -105dBm↓	
TX output power	EGSM : 33dBm (@PL 5) DCS/PCS: 30/29dBm (@PL 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	Main 240 x 320 pixels, 2" QVGA, 262K color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down/Left/Right/Ok Navigation Key, Menu Key, Clear Key, Back Key, Confirm Key, Send Key, Volume Key, PWR Key, Camera Key, Hot Key	
ANT	Built in antenna	
EAR Phone Jack	18pin multi port Headset jack	
PC Synchronization	Yes	
Speech coding	HR/EFR/FR/AMR	
Data and Fax	Yes	
Vibrator	Yes	
Buzzer	No	
Voice Recoding	Yes	
C-Mic	Yes	
Receiver	Yes	
Travel Adapter	Yes	
Options	Bluetooth hands-free kit, Data Kit	

2.2 Technical specification

Item	Description	Specification					
1	Frequency Band	**GSM900** • TX: 890 + 0.2 x n MHz • RX: 935 + 0.2 x n MHz (n = 1 ~ 124) **EGSM** • TX: 890 + 0.2 x (n-1024) MHz • RX: 935 + 0.2 x (n-1024) MHz (n = 975 ~ 1023) **DCS1800** • TX: 1710 + (n-511) x 0.2 MHz (n = 512 ~ 885) • RX: TX + 95 MHz **PCS1900** • TX: 1850.2 + (n-512) x 0.2 MHz (n = 512 ~ 810) • RX: TX + 80MHz					
2	Phase Error	RMS < 5 degrees Peak < 20 degrees					
3	Frequency Error	< 0.1ppm					
4	Power Level	**GSM900/EGSM**					
		Level	Power	Toler.	Level	Power	Toler.
		5	33 dBm	±2dB	13	17 dBm	±3dB
		6	31 dBm	±3dB	14	15 dBm	±3dB
		7	29 dBm	±3dB	15	13 dBm	±3dB
		8	27 dBm	±3dB	16	11 dBm	±5dB
		9	25 dBm	±3dB	17	9 dBm	±5dB
		10	23 dBm	±3dB	18	7 dBm	±5dB
		11	21 dBm	±3dB	19	5 dBm	±5dB
		12	19 dBm	±3dB			
		DCS1800/PCS1900					
		Level	Power	Toler.	Level	Power	Toler.
		0	30 dBm	±2dB	8	14 dBm	±3dB
		1	28 dBm	±3dB	9	12 dBm	±4dB
		2	26 dBm	±3dB	10	10 dBm	±4dB
		3	24 dBm	±3dB	11	8 dBm	±4dB
		4	22 dBm	±3dB	12	6 dBm	±4dB
		5	20 dBm	±3dB	13	4 dBm	±4dB
		6	18 dBm	±3dB	14	2 dBm	±5dB
		7	16 dBm	±3dB	15	0 dBm	±5dB

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	**GSM900/EGSM**	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-63
		3,000 ~ 6,000	-65
		6,000	-71
		DCS1800/PCS1900	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600 ~ 1,200	-60
		1,200 ~ 1,800	-60
		1,800 ~ 3,000	-65
		3,000 ~ 6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	**GSM900/EGSM**	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. GENERAL PERFORMANCE

Item	Description	Specification		
6	Output RF Spectrum (due to switching transient)	**DCS1800/PCS1900**		
		Offset from Carrier (kHz).	Max. (dBm)	
		400	-22	
		600	-24	
		1,200	-24	
		1,800	-27	
7	Spurious Emissions	Conduction, Emission Status		
8	Bit Error Ratio	**EGSM** BER (Class II) < 2.439% @-102dBm **DCS1800/PCS1900** BER (Class II) < 2.439% @-100dBm		
9	Rx Level Report accuracy	± 3 dB		
10	SLR	8 ± 3 dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
12	RLR	2 ±3 dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	2	-7
		500	∗	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		∗ Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.		

Item	Description	Specification	
14	STMR	13±5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (26 MHz) tolerance	≤ 2.5ppm	
19	32.768KHz tolerance	≤ 30ppm	
20	Power consumption	Standby - Normal ≤ 3 mA(@PP9)	
21	Talk Time	EGSM/Lvl 7 (Battery Capacity 800mA):180 min EGSM/Lvl12(Battery Capacity 800 mA):320min	
22	Standby Time	Under conditions, at least 300 hours: 1. Brand new and full 800mAh battery 2. Full charge, no receive/send and keep GSM in idle mode. 3. Broadcast set off. 4. Signal strength display set at 3 level above. 5. Backlight of phone set off.	
23	Ringer Volume	At least 65 dB under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
24	Charge Current	Fast Charge : < 400 mA Slow Charge: < 120 mA	
25	Antenna Display	Antenna Bar Number	Power
		7	>-92 dBm ~
		7 → 5	-97dBm ~ -93dBm
		5 → 4	-100dBm ~ -98dBm
		4 → 2	-103dBm ~ -101dBm
		2 → 1	-105dBm ~ -104dBm
		1 → 0	< -106 dBm
		Off	No Service

2. GENERAL PERFORMANCE

Item	Description	Specification	
26	Battery Indicator	Battery Bar Number	Voltage($\pm$0.05V)
		3	4.15V~4.25V
		2	3.69V~3.79V
		1	3.62V~3.72V
		0	3.54V~3.64V
27	Low Voltage Warning	3.59V $\downarrow$ $\pm$ 0.05V (Call)	
		3.59V $\downarrow$ $\pm$ 0.05V (Standby)	
28	Forced shut down Voltage	3.23 $\pm$ 0.05 V	
29	Battery Type	Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 800mAh	
30	Travel Charger	Switching-mode charger Input: 150 ~ 240 V, 50/60Hz Out put: 5.1, 0.4A	

* EDGE RF Specification (Option: is not serviced for "EDGE mode")

Item	Description	Specification					
1	RMS EVM	$\leq$ 9%					
2	Peak EVM	$\leq$ 30%					
3	95th Percentile EVM	$\leq$ 15%					
4	Origin Offset Suppression	$\geq$ 30dB					
5	Power Level	**GSM900/EGSM**					
		Level	Power	Toler.	Level	Power	Toler.
		5	27dBm	$\pm$3dB	13	17dBm	$\pm$3dB
		6	27dBm	$\pm$3dB	14	15dBm	$\pm$3dB
		7	27dBm	$\pm$3dB	15	13dBm	$\pm$3dB
		8	27dBm	$\pm$3dB	16	11dBm	$\pm$5dB
		9	25dBm	$\pm$3dB	17	9dBm	$\pm$5dB
		10	23dBm	$\pm$3dB	18	7dBm	$\pm$5dB
		11	21dBm	$\pm$3dB	19	5dBm	$\pm$5dB
		12	19dBm	$\pm$3dB			
		DCS1800, PCS1900					
		Level	Power	Toler.	Level	Power	Toler.
		0	26/25dBm	$\pm$3dB	8	14 dBm	$\pm$3dB
		1	26/25dBm	$\pm$3dB	9	12 dBm	$\pm$4dB
		2	26/25dBm	$\pm$3dB	10	10 dBm	$\pm$4dB
		3	24 dBm	$\pm$3dB	11	8 dBm	$\pm$4dB
		4	22 dBm	$\pm$3dB	12	6 dBm	$\pm$4dB
		5	20 dBm	$\pm$3dB	13	4 dBm	$\pm$4dB
		6	18 dBm	$\pm$3dB	14	2 dBm	$\pm$5dB
		7	16 dBm	$\pm$3dB	15	0 dBm	$\pm$5dB
6	Output RF Spectrum (due to modulation)	**GSM900/EGSM**					
		Offset from carrier(kHz)			Max. dBc		
		100			+0.5		
		200			-30		
		250			-33		
		400			-54		
		600 ~ <1,200			-60		
		1,200 ~ <1,800			-60		
		1,800 ~ <3,000			-63		
		3,000 ~ <6,000			-65		
		6,000			-71		

LGE Internal Use Only

2. GENERAL PERFORMANCE

Item	Description	Specification	
6	Output RF Spectrum (due to modulation)	**DCS1800, PCS1900**	
		Offset from carrier(kHz)	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-54
		600 ~ <1,200	-60
		1,200 ~ <1,800	-60
		1,800 ~ <3,000	-63
		3,000 ~ <6,000	-65
		6,000	-71
7	Output RF Spectrum (due to switching transient)	**GSM900/EGSM**	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	--30
		DCS1800, PCS1900	
		Offset from carrier(kHz)	Max. dBm
		400	-23
		600	-26
		1,200	-27
		1,800	-30

3. TECHNICAL BRIEF
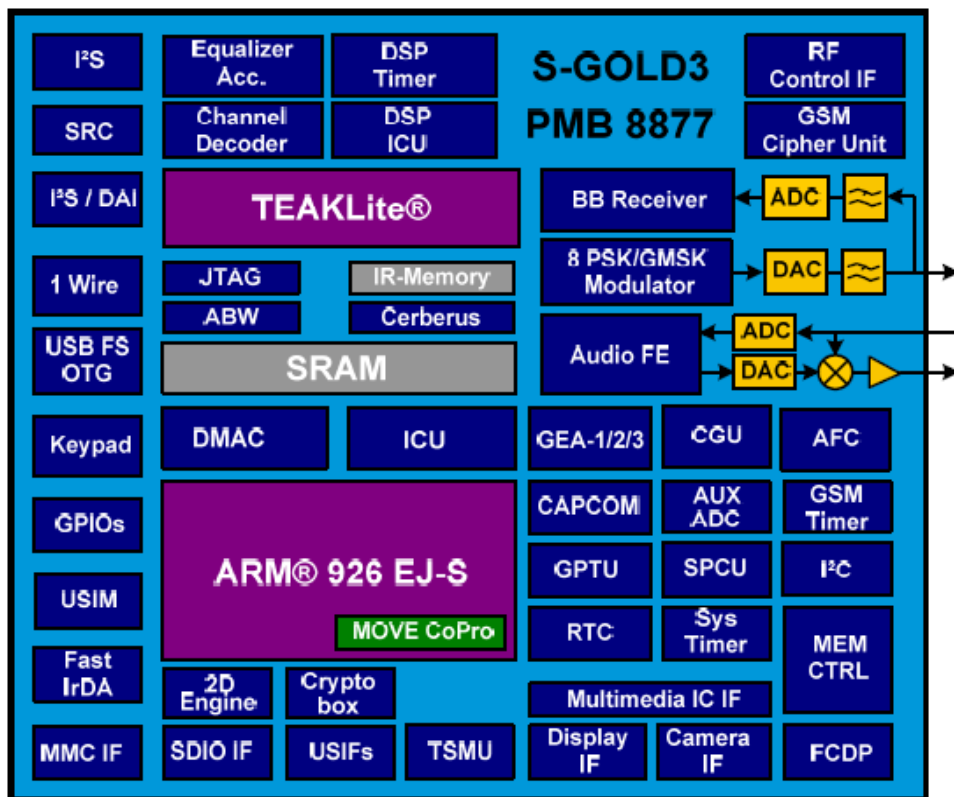
3.1 Baseband Processor (BBP) Introduction

Figure 1 Top level block diagram of the S-GOLD3TM (PMB8877)

3. TECHNICAL BRIEF

3.1.1 General Description

S-GOLD3™ is a GSM/EDGE single chip mixed signal Baseband IC containing all analog and digital functionality of a cellular radio. Additionally S-GOLD3™ Provides multimedia extensions such as camera, software MIDI, MP3 sound. It is designed as a single chip solution, integrating the digital and mixed signal portions of the base band in 0.09um, 1.2V technology.

The chip will fully support the FR, EFR, HR and AMR-NB vocoding. S-GOLD3™ support multi-slot operation modes HSCSD (up to class 10), GPRS for high speed data application (up to class 12) and EGPRS (up to class 12) without additional external hardware.

3.1.2 Block Description

· Processing core
ARM926EJ-S 32 bit processor core for controller functions. The ARM926EJ-S includes an MMU, and the Jazelle Java extension for Java acceleration.
- TEAKLite DSP core

· ARM-Memory
  - 32k Byte Boot ROM on the AHB
  - 96k Byte SRAM on the AHB, flexibly usable as program or data RAM
  - 16k Byte Cache for Program (internal)
  - 8k Byte tightly coupled memory for Program(internal)
  - 8k Byte Cache for Data(internal)
  - 8k Byte tightly coupled memory for Data(internal)

· DSP-Memory
  - 104K x 16bit Program ROM
  - 8k x 16bit Program RAM
  - 60k x 16bit Data ROM
  - 37k x 16bit Data RAM
  - Incremental Redundancy(IR) Memory of 35904 words of 16bit

- Shared Memory Block
  1.5K x 32bit Shared RAM(dual ported) between controller system and TEAKLite.

- Controller Bus system
  The processor cores and their peripherals are connected by powerful buses. Multi-layer AHB for connecting the ARM and the other master capable building blocks with the internal and external memories and with the peripheral buses.

- Clock system
  The clock system allows widely independent selection of frequencies for the essential parts of the S-GOLD3. Thus power consumption and performance can be optimized for each application.

- Functional Hardware block

  - CPU and DSP Timers

  - MOVE coprocessor performing motion estimation for video encoding algorithms
    (H.263, MPEG-4)

  - Programmable PLL with additional phase shifters for system clock generation

  - GSM Timer Module that off-loads the CPU from radio channel timing

  - GMSK / 8-PSK Modulator according to GSM-standard 05.04 (5/2000)

  - GMSK Modulator: gauss-filter with B*T=0.3

  - EDGE Modulator: 8PSK-modulation with linearized GMSK-Pulse-Filter

  - Hardware accelerators for equalizer and channel decoding.

  - Incremental Redundancy memory for EDGE class 12 support

  - A5/1, A5/2, A5/3 Cipher unit

  - GEA1, GEA2, GEA3 Cipher Unit to support GPRS data transmission

  - Advanced static and dynamic power management features including TDMA-Frame synchronous low power mode and enhanced CPU modes(idle and sleep modes)

  - Pulse Number Modulation output for Automatic Frequency Correction(AFC)

  - Serial RF Control interface: support of direct conversion RF

  - A Universal Serial Interface(USIF) enabling asynchronous (UART) of synchronous (SPI) serial data transmission

  - 3 USIF with autobaud detection, hardware flow control and integrated

  - A dedicated Fas IfDA Controller supporting IrDA's SIR,MIR and FIR standards (up to 4Mbps)

  - I2C-bus interface (e.g. connection to S/M power)

  - A fast display interface supporting serial and parallel interconnection

  - An ITU-R BT.656 compatible Camera interface.

  - Programmable clock output for a camera

  - An multimedia/Secure Digital Card Interface (MMCI/SD:SDIO capable)

3. TECHNICAL BRIEF

3.1.3 External Devices connected to memory interface

Table 1. Memory interface

Device	Name	Maker	Remark
FLASH	K5E1G12ACA-D075	Samsung	Synchronous / A synchronous
DDR	K5E1G12ACA-D075	Samsung	Synchronous 133MHz
LCD	IM200DST2A	LGIT	8bit access 2 times transmission
Melody IC	Not Used	S/W	Infineon Software CODEC

3.1.4 RF Interface (T_OUT)

S-Gold3 uses this interface to control RF IC and Peripherals. 13 signals are provided switch on/off RF ICs Periodically each TDMA frame.

Table 2. RF Interface Spec.

Resource	Interconnection	Description
T_OUT0	TXON_PA	PAM Power on
T_OUT1	Other function	-
T_OUT2	PA_BAND	TX RF band select
T_OUT3	ANT_SW1	FEM control
T_OUT4	ANT_SW2	FEM control
T_OUT5	ANT_SW3	FEM control
T_OUT6	MODE	PAM Mode select

3.1.5 USIF Interface

KF350 have three USIF Drivers as follow :

- USIF1 : Hardware Flow Control / SW upgrade / Calibration
- USIF2 : Not used Rx, Tx and CTS, RTS use BT Interface
- USIF3 : BT Interface

Table 3. USIF Interface Spec.

Resource	Name	Remark
USIF1		
USIF1_TXD	TXD	Transmit Data
USIF1_RXD	RXD	Receive Data
USIF1_CTS	USB_DP	
USIF1_RTS	USB_DM	
USIF2		
USIF2_TXD	NC	NC
USIF2_RXD	NC	NC
USIF2_CTS	BT_CTS	
USIF2_RTS	BT_RTS.	
USIF3		
USIF3_TXD	BT_TX	BT Transmit tx
USIF3_RXD	BT_RX	BT Receive rx

3.1.6 ADC channel

BBP ADC block is composed of 10 external ADC channel. This block operates charging process and other related process by reading battery voltage and other analog values.

Table 4. S-Gold3 ADC channel usage

ADC channel		
Resource	Interconnection	Description
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	N.C	
M3	JACK_TYPE	Accessory type detect
M4	N.C	
M5	H/W VERSION	S-Gold3 H/W version detect
M6	N.C	
M7	N.C	
M8	VSUPPLY	Battery supply voltage measure
M9	N.C	
M10	N.C	

- 24 -

3.1.7 GPIO map

Over a hundred allowable resources, KF350 is using as follows except dedicated to SIM and Memory. KF350 GPIO(General Purpose Input/Output) Map, describing application, I/O state, and enable level, is shown in below table

Table 5 S-Gold3 GPIO pin Map

Port Function	Net Name	Description
KEY MATRIX		
KP_IN0	KP_IN(0)	
KP_IN1	KP_IN(1)	
KP_IN2	KP_IN(2)	
KP_IN3	KP_IN(3)	
KP_IN4	KP_IN(4)	
KP_IN5	KP_IN(5)	
KP_OUT5	KP_OUT(5)	
KP_OUT0	KP_OUT(0)	
KP_OUT1	KP_OUT(1)	
KP_OUT2	KP_OUT(2)	
KP_OUT3	KP_OUT(3)	
USIF1		
USIF1_RXD	RXD	UART, RS232 Data
USIF1_TXD	TXD	UART, RS232 Data
USIF1_RTS_N	USB_DP	USB Data
USIF1_CTS_N	USB_DM	USB Data
USIF2		
USIF2 _RXD		Not used
USIF2 _TXD		Not used
USIF2_RTS_N	BT_RTS	Bluetooth RTS
USIF2_CTS_N	BT_CTS	Bluetooth CTS
USIF3		
USIF3 _RXD	BT_RXD	Bluetooth RX
USIF3 _TXD	BT_TXD	Bluetooth TX
CLK		
CLK32K	CLK32k	For FM Radio, BT CLK32K
GPIO_22		Not used

CAMERA I/F		
CIF_PCLK	CAM_PCLK	Camera pixel clock
CIF_HSYNC	CAM_HS	Camera H sync
CIF_VSYNC	CAM_VS	Camera V sync
CLKOUT2	CAM_MCLK	Camera main clock
CIF_PD_GPIO	CAM_PWDN	Camera sensor power down
CIF_RESET_GPIO	CAM_RST	Camera reset
#Display_Interface		
CIF_D0	CIF_D(0)	Camera DATA[0]
CIF_D1	CIF_D(1)	Camera DATA[1]
CIF_D2	CIF_D(2)	Camera DATA[2]
CIF_D3	CIF_D(3)	Camera DATA[3]
CIF_D4	CIF_D(4)	Camera DATA[4]
CIF_D5	CIF_D(5)	Camera DATA[5]
CIF_D6	CIF_D(6)	Camera DATA[6]
CIF_D7	CIF_D(7)	Camera DATA[7]
CIF_PCLK	CIF_PCLK	Camera pixel clock
CIF_HSYNC	CIF_HS	Camera H sync
CIF_VSYNC	CIF_VS	Camera V sync
CLKOUT	CIF_MCLK	Camera main clock
CIF_PD	CIF_PD	Camera power down(active high)
CIF_RESET	CIF_RESET	Camera reset
LCD I/F		
DIF_D0	DIF_D(0)	LCD data[0]
DIF_D1	DIF_D(1)	LCD data[1]
DIF_D2	DIF_D(2)	LCD data[2]
DIF_D3	DIF_D(3)	LCD data[3]
DIF_D4	DIF_D(4)	LCD data[4]
DIF_D5	DIF_D(5)	LCD data[5]
DIF_D6	DIF_D(6)	LCD data[6]
DIF_D7	DIF_D(7)	LCD data[7]
DIF_D8	DIF_D(8)	LCD data[8]
DIF_CS1	DIF_MAIN_CS	MAIN LCD chip select
DIF_CS2	DIF_SUB_CS	SUB LCD chip select
DIF_CD	DIF_CD	Command Data switch

DIF_WR	DIF_WR	LCD Write
EINT7	HOOK_DETECT	Ear-Mic hook detection
DIF_RESET1	DIF_RESET	LCD Reset
GPIO_108	CAM_LDO_EN	For CAM Core 1.8V, 2.8V LDO
I2C		
I2C_SCL	SCL	For FM/BT/Amp/Camera
I2C_SDA	SDA	For FM/BT/Amp/Camera
PM_INT (EINT)	PM_INT	
SIM I/F		
CC_IO	SIM_IO	SIM CARD I/O
CC_CLK	SIM_CLK	SIM CARD CLOCK
CC_RST	SIM_RST	SIM CARD RESET
I2S2		
I2S2_CLK0		Not used
GPIO_102	_WP	Not used
I2S2_RX		Not used
I2S2_TX		Not used
I2S2_WA0		Not used
GPIO_103		Not used
External Memory		
MMCI_CMD	TF_CMD	T-flash
MMCI_DAT[0]	TF_DAT0	T-flash
MMCI_CLK	TF_CLK	T-flash
GPIO_109	USB_EOC	USB End of charging detect (High: EOC, Low: charging)
IrDA		
GPIO_110	RPWRON	Remote power on detect (High: Remote, Low: Normal)
GPIO_109	SPK_RCV_SEL	Audio pass select (high: Speaker, Low: Receiver)
I2S1		
I2S1_CLK0	I2S1_CLK	For Bluetooth
GPTU0_0	FLASH_EN	For Camera Flash LED
I2S1_RX	I2S1_RX	For Bluetooth
I2S1_TX	I2S1_TX	For Bluetooth
I2S1_WA0	I2S1_WA	For Bluetooth

External Memory		
MMCI_DAT[1]	TF_DAT1	T-flash
MMCI_DAT[2]	TF_DAT2	T-flash
MMCI_DAT[3]	TF_DAT3	T-flash
Audio I/F		
EPN1	RCV_N	For Receiver
EPP1	RCV_P	For Receiver
EPPA1	BBP_SND_L	For Speaker
EPREF		Reference
EPPA2	BBP_SND_R	For Speaker
MICN1	MIC1_N	For Mic
MICP1	MIC1_P	For Mic
MICN2	MIC2_N	For Headset Mic
MICP2	MIC2_P	For Headset Mic
VMICP	VMICP	Power for MIC
VMICN	VMICN	Power for MIC
ADC		
M0	BAT_ID	Battery temperature measure
M1	RF_TEMP	RF block temperature measure
M2	REMOTE_ADC	Remote Control
M3	JACK_TYPE	Accessory type detect
M7	H/W VERSION	S-Gold2 H/W version detect
M8	VSUPPLY	Battery supply voltage measure
M9	I_MONITOR	Current consumption measure
M10	N.C	
Reference		
VREF		
IREF		
JTAG I/F		
TDO	TDO	JTAG
TDI	TDI	JTAG
TMS	TMS	JTAG
TCK	TCK	JTAG
TRST_n	_TRST	JTAG
RTCK	RTCK	JTAG

ETM I/F		
TRIG_IN	TRIG_IN	ETM (Embedded Trace Macro Cell)
MON1	MON1	ETM
MON2	MON2	ETM
TRACESYNC	TRACESYNC	ETM
TRACECLK	TRACECLK	ETM
PIPESTAT[2]	PIPESTAT2	ETM
PIPESTAT[1]	PIPESTAT1	ETM
PIPESTAT[0]	PIPESTAT0	ETM
TRACEPKT[0]	TRACEPKT(0)	ETM
TRACEPKT[1]	TRACEPKT(1)	ETM
TRACEPKT[2]	TRACEPKT(2)	ETM
TRACEPKT[3]	TRACEPKT(3)	ETM
TRACEPKT[4]	TRACEPKT(4)	ETM
TRACEPKT[5]	TRACEPKT(5)	ETM
TRACEPKT[6]	TRACEPKT(6)	ETM
TRACEPKT[7]	TRACEPKT(7)	ETM
Memory		
MEM_AD[0]	D(0)	
MEM _AD[1]	D(1)	
MEM _AD[2]	D(2)	
MEM _AD[3]	D(3)	
MEM _AD[4]	D(4)	
MEM _AD[5]	D(5)	
MEM _AD[6]	D(6)	
MEM _AD[7]	D(7)	
MEM _AD[8]	D(8)	
MEM _AD[9]	D(9)	
MEM _AD[10]	D(10)	
MEM _AD[11]	D(11)	
MEM _AD[12]	D(12)	
MEM _AD[13]	D(13)	
MEM _AD[14]	D(14)	
MEM _AD[15]	D(15)	
MEM _WR_n	_WR	

MEM _RD_n	_RD	
MEM _BC0_n	_BC0	
MEM _BC1_n	_BC1	
MEM _A[0]	A(0)	
MEM _A[1]	A(1)	
MEM _A[2]	A(2)	
MEM _A[3]	A(3)	
MEM _A[4]	A(4)	
MEM _A[5]	A(5)	
MEM _A[6]	A(6)	
MEM _A[7]	A(7)	
MEM _A[8]	A(8)	
MEM _A[9]	A(9)	
MEM _A[10]	A(10)	
MEM _A[11]	A(11)	
MEM _A[12]	A(12)	
MEM _A[13]	A(13)	
MEM _A[14]	A(14)	
MEM _A[15]	A(15)	
MEM _A[16]	A(16)	
MEM _A[17]	A(17)	
MEM _A[18]	A(18)	
MEM _A[19]	A(19)	
MEM _A[20]	A(20)	
MEM _A[21]	A(21)	
MEM _A[22]	A(22)	
MEM _A[23]	A(23)	
MEM _A[24]	A(24)	
MEM _CS0_n	_FLASH1_CS	INTEL NOR (64MB)
MEM _CS1_n	_RAM_CS	INTEL SDRAM (64MB)
MEM _CS2_n	_FLASH2_CS	Not used
MEM _CS3_n	_CS3	Not used
MEM _ADV_n	_ADV	
MEM _RAS_n	_RAS	
MEM _CAS_n	_CAS	

MEM _WAIT_n	_WAIT	
MEM _SDCLKO	SDCLKO	For Burst mode
MEM _SDCLKI	SDCLKI	For Burst mode
MEM _BFCLKO	BFCLKO	For Burst mode
MEM _BFCLKI	BFCLKI	For Burst mode
MEM _CKE	CKE	
Memory		
FCDP_RBn	FCDP	
TDMA I/F		
T_OUT0	TXON_PA	PAM
GPIO_44	VIB_EN	
T_OUT2	PA_BAND	PAM
T_OUT3	ANT_SW1	
T_OUT4	ANT_SW2	
T_OUT5	ANT_SW3	
T_OUT6	MODE	PAM
KP_OUT4	KP_OUT(4)	
EINT7	JACK_DETECT	
CC1CC3IO	LCD_BACKLIGHT	LCD Backlight control
GPIO_53	LCD_ID	LCD ID check
GPIO_54	_FM_RESET	
RF I/F		
RF_STR0	RF_EN	
CC1CC5IO	SLIDE_DETECT	Folder on/off detection
RF_DATA	RF_DA	
RF_CLK	RF_CLK	
System Port		
AFC	AFC	
CLKOUT0 [<=26MHz]		Not used
F26M	26MHZ_MCLK	26M Main Clock
F32K		to 32k crystal
OSC32K		to 32k crystal
RESET_n	_RESET	
TRIG_OUT	TRIG_OUT	
RTC_OUT	RTC_OUT	

VCXO_EN	VCXO_EN	
DSP		
GPIO_61	_BT_RESET	
GPIO_62	SLED_BACKLIGHT	Navi key LED Backlight Control
GPIO_63	_SIM_EN	

3. TECHNICAL BRIEF

3.2 Power management IC

3.2.1 General Description

SM-POWER is a highly integrated Power and Battery Management IC for mobile handsets. It has been specially designed for usage with S-Gold3. Although optimized for usage with the Infineon S-GOLD baseband device it is suitable for the S-GOLDlite and the E-GOLD+ baseband devices as well. It also supports the cellular RF devices like SMARTi-DC, SMARTi-DC+, SMARTi-SD and the Bluemoon Single, Infineon's single chip solution for Bluetooth. If used with S-GOLD3 it provides all power supply functions (except for the RF PA) for a complete advanced GSM Edge smart phone minimizing external device count.

Block Description
- Highly efficient step-down converter for main digital baseband supply including Core, DSP and memory interface (External Bus Unit).
- Support of S-GOLD standby power-down concept
- Low-drop-out (LDO) regulators for Flash and mobile RAM memory devices
- Voltage independent switching of two SIM cards
- LDO regulators for baseband I/O supply
- LDO regulator for analog mixed-signal section of S-GOLD
- Low-noise LDO regulators for RF devices
- Supply for Bluemoon Single, Infineon's single chip solution for Bluetooth
- Audio amplifier 8 Ohms for handsfree operation and ringing
- Charge Control for charging Li-Ion/Polymer batteries under software control
- Pre-charge current generator with selectable current level
- RTC regulator with ultra-low quiescent current
- USB interface support for peripheral and mini-host mode
- Backlight LEDs driver with current selection and PWM dimming function
- Two single LED driver outputs for signaling
- Vibrator driver with adjustable voltage
- Fully controlable by software via I2C - Bus
- Temperature and battery voltage sensors
- Interrupt channels for peripherals
- System debug mode
- VQFN 48 package with heat sink and non-protruding leads
- Compatible with the Infineon E-GOLD+ V2 and V3

SM-POWER is a further step on the successful E-Power product line with enhanced and optimized functionality.

SM-POWER features a baseband supply concept with a DC/DC step-down converter cascaded by two linear regulators

- SM-POWER's DC/DC converter makes up to 40 % reduction of battery current for smart phone functions (e.g. organizer functions, games, MP3 decoding) possible.
- SDBB has high efficiency up to 95% and also a power save mode.
- Memory Interface is directly supported by the SDBB
- SDBB can also act as main supply voltage for E-GOLD+ or S-GOLDlite baseband devices.
- For S-GOLD two linear regulators for DSP and Core are cascaded after the SDBB.

SM-POWER supports the standby power-down concept of S-GOLD by temporarily switching off the linear regulator for the DSP during mobile standby whenever this subsystem is not used. In this phase the ARM controller and most peripherals including parts of the on-chip SRAM are kept powered-up with power being supplied by the other linear regulator.

SM-POWER includes a fully differential audio amplifier able to drive loads down to a nominal value of 8 Ohm for usage in hands-free phones and for ringing

- 450 mW maximum output power
- adjustable gain
- mute switch SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries
- click and pop -protection SM-POWER also integrates a charging function for Li-Ion, Li-Polymer batteries
- Precharge current source with two current levels
- Constant current / constant voltage charging with 3 different termination voltages
- Programable charge current limitation for use with different batteries
- Freely programable pulse charging to reduce the thermal power dissipation in the constant voltage charging phase
- Top-off charge current sensing SM-POWER completes the USB interface of S-GOLD
- Regulated voltage for S-GOLD USB interface including reverse current and overvoltage protection
- Switch to supply USB pull-up resistor
- Mini-host pull down resistor functionality
- Charge pump with internal switching capacitor for USB host VBUS supply voltage SM-POWER fully supports LED and Vibra Motor functionality
- no external components needed
- driver for backlight LEDs adjustable in steps up to 140mA and with soft turn on and off by PWM dimming
- two driver outputs for single LEDs for precharge indication and signaling with i.e. change of colour

- driver for Vibra Motor with adjustable voltages, soft startup / shutdown and current limitation SM-POWER offers several control functions
- Power-on Reset Generator with logic state machine
- I2C bus interface
- I2C bus configurable mode control logic with ON (push-button or RTC), VCXOEN and LRF3EN (wake-up by Bluetooth) inputs
- Programable interrupt channels to handle peripherals like SIM, MMC and USB
- Monitoring of charging functions
- Undervoltage Shut-Down
- Errorflags (volatile or non-volatile) from many power-supply functions and thermal sensor in order to debug system
- Overtemperature Shut-Down
- Overtemperature Warning
- Support of S-GOLD standby power-down concept
- Support of S-GOLD Power-Down Pad Tristate Function

Table 6. LDO Output Table of SM-Power

LDO	Net name	Output Voltage	Output Current	Usage
SD1	1V35_Core	1.35V	600mA	Core & for LDO
SD2	1V8_SD	1.8V	300mA	Memory
VAUX	2V9_VAF	2.9V	100mA	Cam Auto Focus
VIO	2V62_VIO	2.62V	100mA	Peripherals
VSIM	2V9_SIM	2.9V	70mA	SIM card
VMME	2V8_VMME	2.9V	150mA	u-SD
VUMTS	2V85_AMP	2.85V	110mA	Headset AMP
VUSB	VUSB	3.1V	40mA	Not used
VLED	VLED	2.9V	10mA	Not used
VAUDIOa	2V5_VAUDA	2.5V	200mA	Stereo headset, Mono earpiece
VAUDIOb	2V5_VAUDB	2.5V	50mA	Analog parts of S-Gold
VRF1	2V85_VRF	2.85V	150mA	2.85 V supply for SMARTi-PM RF transceiver
VRF2	1V5_VRF	1,53V	100mA	1.5 V supply for SMARTi-PM RF transceiver
VRF3	2V65_VBT	2.7V	150mA	Bluetooth
VPLL	1V35_VPLL	1.35V	30mA	S-GOLD3 PLL
VRTC	2V11_RTC	2.11V	4mA	Real Time Clock
VAFC	VAFC	2.65V	5mA	Not used
VVIB	2V8_VLCD	2.8V	140mA	LCD

PMIC

Figure 3. SM-Power Circuit Diagram of KF350

Figure 4 SM-Power circuit diagram with charging part

3. TECHNICAL BRIEF

3.2.2 Charging

SM-POWER provides together with an external p-channel FET Siliconix Si3455 an external AC-adapter a complete charge control function for charging of Li-Ion or Li-Ion-Polymer batteries. Either a 1-cell Li-Ion or Li-Ion-Polymer battery with 4.1, 4.2 or 4.4 Volts may be used.

| 4.2V~3.69V | 3.69V~3.53V | 3.53V~3.43V | 3.43V~3.35V |
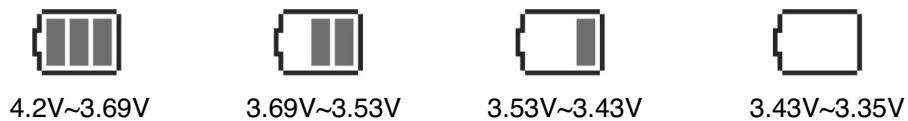
Figure 5 Battery Block Indication

1. Charging method : CC-CV
2. Charger detect voltage : 4.0 V
3. Charging time : 2h 40m
4. Charging current : 380 mA
5. CV voltage : 4.2 V
6. Cutoff current : 110 mA
7. Full charge indication current (icon stop current) : 110 mA
8. Recharge voltage : 4.16 V
9. Low battery alarm
   a. Idle : 3.43 V ~ 3.3 V
   b. Dedicated : 3.53 V ~ 3.3 V
10. Low battery alarm interval
    a. Idle : 3 min
    b. Dedicated : 1 min
11. Switch-off voltage : 3.3 V
12. Charging temperature adc range
    a. ~ -5°C : low charging voltage operation (3.6 V ~ 3.9 V)
    b. -5 ~ 50°C : standard charging (up to 4.2 V)
    c. 50°C ~ : low charging voltage operation (3.6V ~ 3.9V)

3.3 Power ON/OFF

KF350 Power State : Defined 3cases as follow

▶ Power-ON : Power key detect (SM-Power's ON port)

▶ Power-ON-charging : Charger detect.
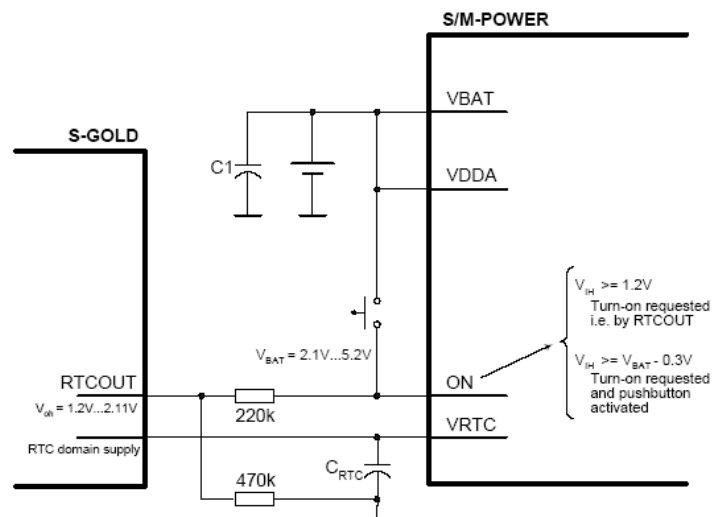
Input ON is a power-on input for SM-POWER with 2 active high levels (see Figure 6). It might be triggered by a push button or by the RTCOUT output of the S-GOLD device as well. To detect if the push-button is pressed during system operation the logical level at pin ON or its change (if Bit 1 EION in INTCTRL2 is asserted) is recorded in bit LON of the ISF register. If the high level of voltage at pin ON does not reach VIHdet (Vbat-0.8 ~ Vbat-0.3) the above-mentioned bit won't be set.

To support Remote power on function for factory mass production, applied an analog switch as following figure. As monitoring the RPWRON and Key matrix KP_OUT(2) & KP_IN (0), KF350 system recognize whether remote power on or End-key pushed
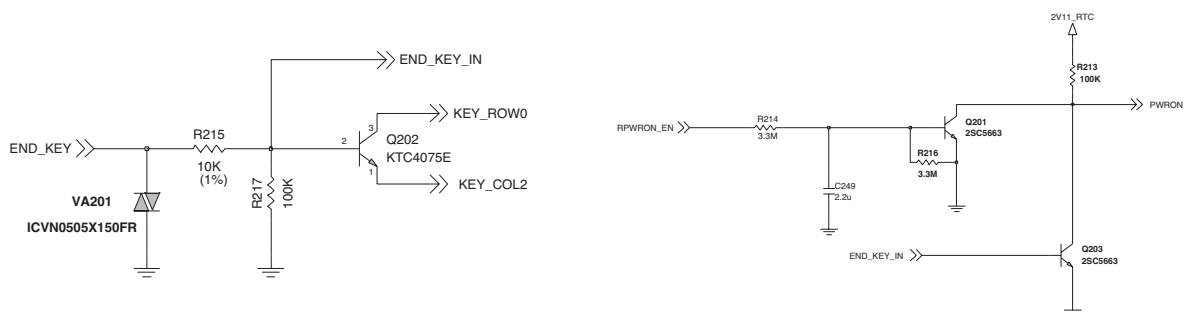
Figure 7 Remote power on and End-key power on circuit

3.4 SIM & uSD interface

KF350 supports 1.8V & 2.9V plug in SIM, SIM interface scheme is shown in (Figure 8).
SIM_IO, SIM_CLK, SIM_RST ports are used to communicate with BBP(S-Gold3) and the SIM power supply enabled by PMIC.

SIM Interface

    SIM_CLK : SIM card reference clock

    SIM_RST : SIM card Async /sync reset

    SIM_IO : SIM card bidirectional reset
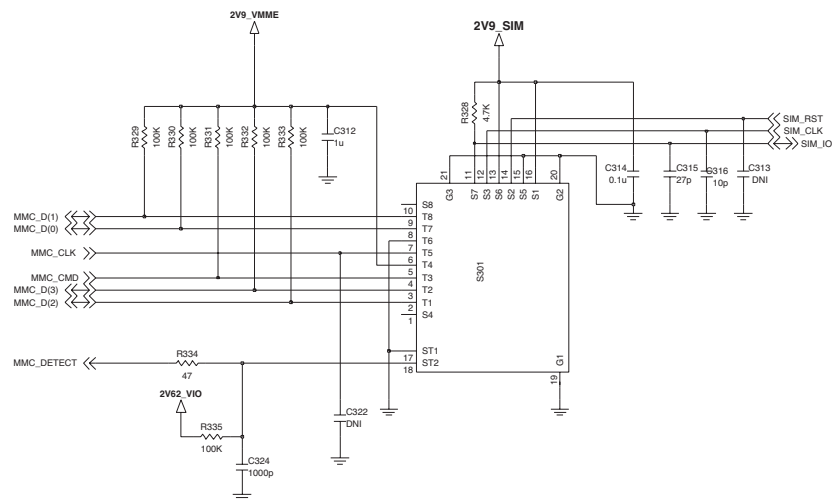
Figure 8 SIM & Micro SD Circuit

The MicroSD Memory Module has eight exposed contacts on one side. The S-Gold3 is connected to the module using a dedicated eight-pin connector
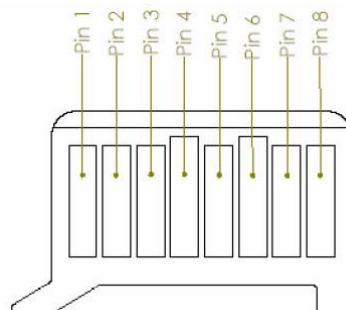
Micro SD Memory Card Detection Scheme

Micro SD memory pad assign.

SD mode			
Pin No.	Name	Type	Description
1	DAT2	I/O	Data bit [2]
2	CD/DAT3	I/O	Data bit [3]
3	CMD	I/O	Command response
4	VDD	Power	Power supply
5	CLK	I	Clock
6	VSS	Ground	Power ground
7	DAT0	I/O	Data bit [0]
8	DAT1	I/O	Data bit [1]

- 39 -   LGE Internal Use Only

3. TECHNICAL BRIEF

3.5 Memory

1Gbit Flash & 512Mbit DDRAM employed on KF350 with 8 & 16 bit parallel data bus thru ADD(0) ~ ADD(24). The 1Gbit Nand Flash memory with DDRAM stacked device family offers multiple high-performance solutions.
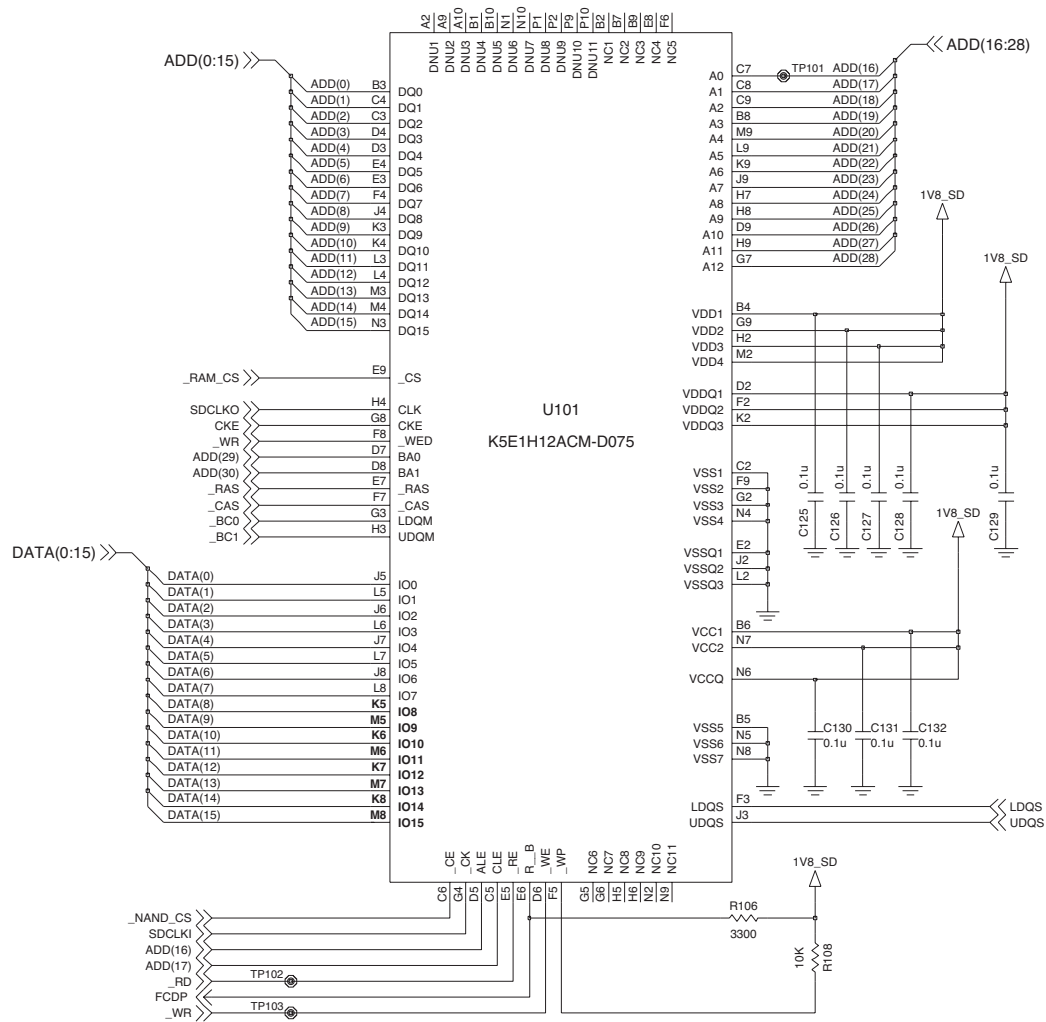
Figure 9 Flash memory & DDR RAM MCP circuit diagram

3.6 LCD Display

LCD module include:

   - Main LCD: 2.0" 240x320 QVGA, 262K color TFT

   - Backlight : 5 piece of white LED

LCD FPC Interface Spec:

Table 7. LCD FPC Interface Spec.

Pin No	Symbol	Description	I/O	Remarks
1	VCC	Power supply for analog	-	
2	VDDIO	Power supply for I/O	-	
3	MAKER_ID	MARKER_ID pin = "VCC"	-	
4	GND	GND level pin	-	
5	D0	Data Bus	I/O	
6	D1	Data Bus	I/O	
7	D2	Data Bus	I/O	
8	D3	Data Bus	I/O	
9	D4	Data Bus	I/O	
10	D5	Data Bus	I/O	
11	D6	Data Bus	I/O	
12	D7	Data Bus	I/O	
13	D8	Data Bus	I/O	
14	D9	Data Bus	I/O	
15	D10	Data Bus	I/O	
16	D11	Data Bus	I/O	
17	D12	Data Bus	I/O	
18	D13	Data Bus	I/O	
19	D14	Data Bus	I/O	
20	D15	Data Bus	I/O	
21	GND	GND level pin	-	
22	RESETB	Reset enable	I	Low(GND) enable
23	WRB	GND level pin	-	
24	RDB	Read enable	I	Low(GND) enable
25	CS	Chip Select	I	Low(GND) enable
26	RS	Data / Command selectable	I	High(VDDIO) : Access to data Low(GND) : Access to Index
27	IFMODE	Bus width setting	I	High(VDDIO) : 8bit parallel Low(GND) : 16bit parallel
28	GND	GND level pin	-	
29	VSYNC_O	Tearing Effect Output	O	
30	LED CATHDE 5	LED5 Cathode	-	
31	LED CATHDE 4	LED4 Cathode	-	
32	LED CATHDE 3	LED3 Cathode	-	
33	LED CATHDE 2	LED2 Cathode	-	
34	LED CATHDE 1	LED1 Cathode	-	
35	LED ANODE	LED1~5 Anode Common	-	

3.7 Keypad Switching & Scanning

The keypad interface is a peripheral which can be used for scanning keypads up to 8 rows (outputs from Port Control Logic) and 8 columns (inputs to PCL). The number of rows and columns depend on settings of the PCL.
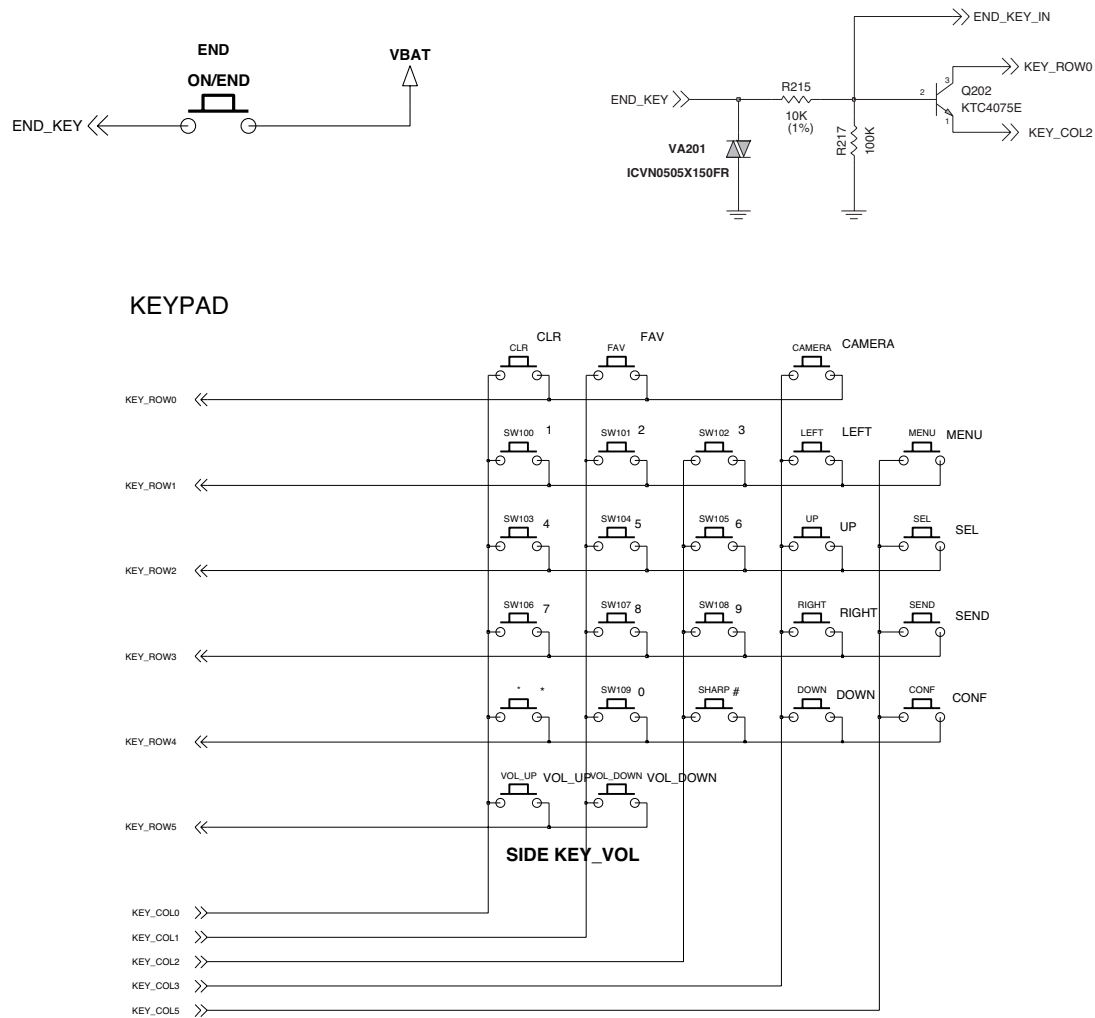
Figure 10 Key pad part key matrix

3.8 Keypad back-light illumination

There are 2 snow white color LEDs on Key FPCB for keypad illumination. Keypad Back-light is controlled by SM-Power Flash LED port which has constant current control function. The whole configuration of the SM-POWER Flash LED drivers is shown in below Figure11.
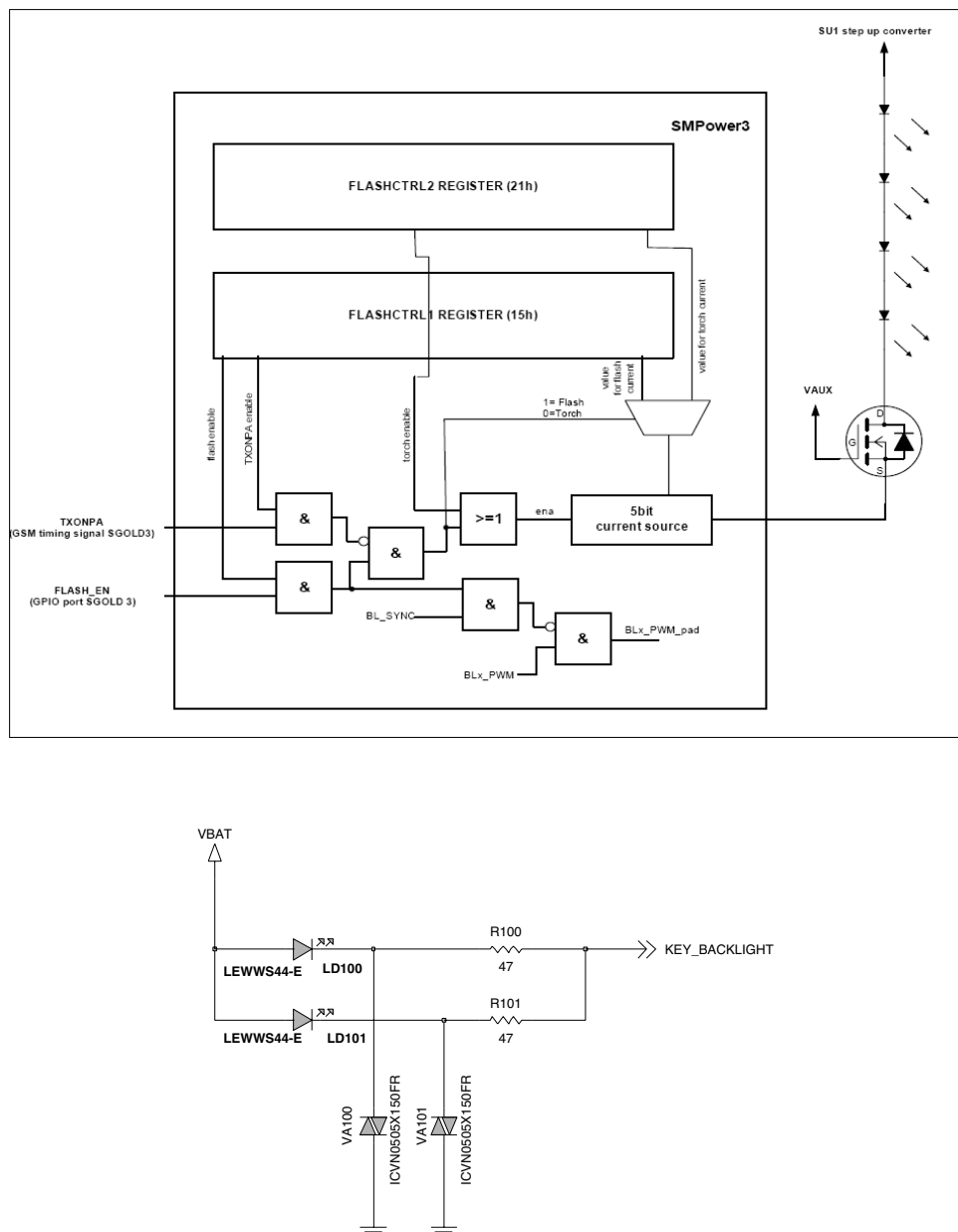
Figure 11 Keypad Back-light LEDs

3.9 LCD back-light illumination

The AS3675 is a highly-integrated CMOS Power and Lighting Management Unit for operating with lithium-ion/polymer batteries. And AS3675 support 13 Current sinks, the RGB and white LEDs. The AS3675 is capable of driving up to three LEDs at a total of 500mA. The current sinks may be operated individually or in parallel for driving higher current LEDs. To maximize power efficiency, the charge pump operates in 1X, 1.5X, or 2X mode, where the mode of operation is automatically selected by comparing the forward voltage of each LED with the input voltage.
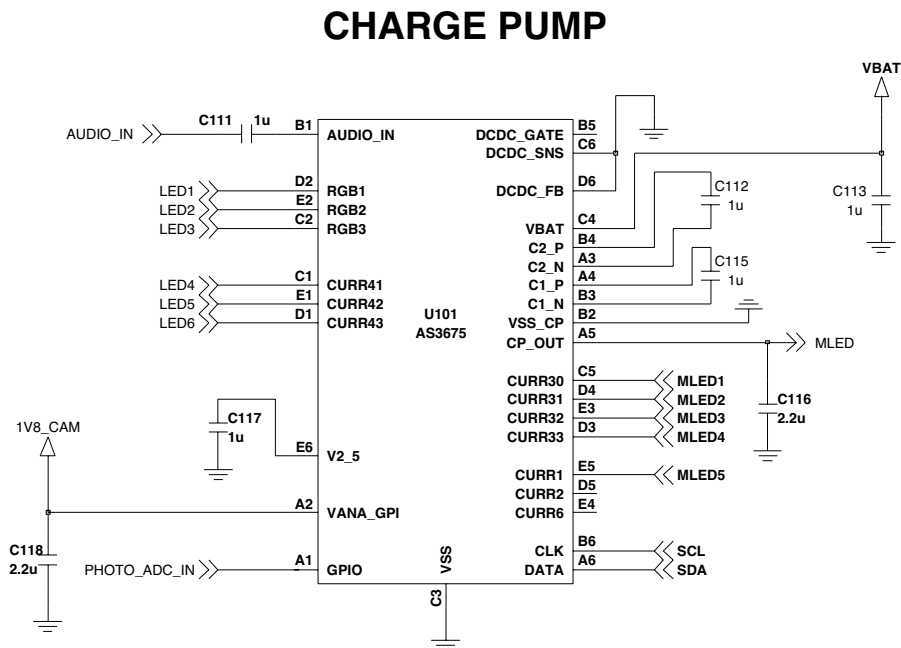
CHARGE PUMP

Figure 12 LCD Back light unit and Flash LED charge pump IC

The AS3675 is controlled using serial interface pins CLK and DATA. The clock line CLK is never held Low by the AS3675(as the AS3675 does not use clock stretching of the bus)

・Fast Mode Capability(Maximum Clock Frequency is 400 kHZ)

・Write Formats

・Write Formats (-. Single-Byte Write , -. Page-Write)

・Read Formats (-. Current-Address Read -. Random-Read, - Sequential °©Read)

・DATA Input Delay and CLK Spike Filtering by Integrated RC address.
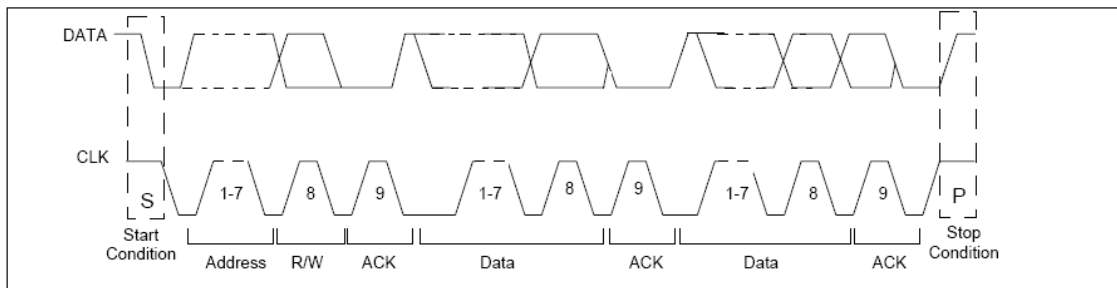
Figure 13 I2C Serial data port control method

3. TECHNICAL BRIEF

3.10 ALC

The automatic luminance control (ALC) circuit adjusts the LED dimming by changing the LED current automatically in response to the brightness of the surroundings. An external photodiode or similar luminance sensor must be connected for the ALC automatic control to function. The luminance sensor is connected to PD and must be set to increase the PD input current in response to increasing luminance of the surroundings. In the typical application circuit in section 13, the SM8152A VREF terminal is used and the luminance sensor photodiode is connected between PD and VREF
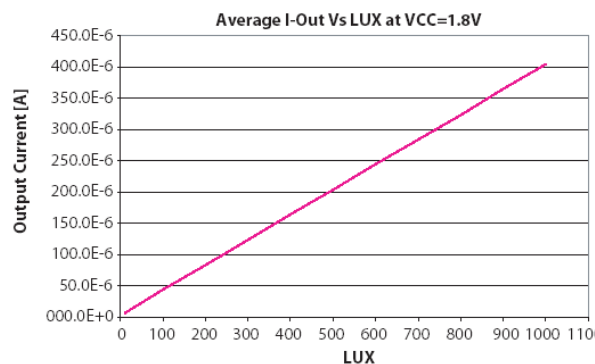
Figure 14 Average Iout vs Lux on photo sensor

3.11 JTAG & ETM interface connector
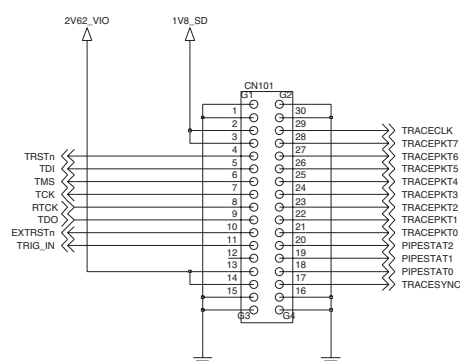
Figure 15 JTAG & ETM(Embedded Trace Module) interface connector

In case of KF350 mass production, the JTAG & ETM interface connector will not be mount on board. That is only for developing and software debugging purpose.(It will not be mounted on mass production PCB)

3.12 Audio

KF350 Audio signal flow diagram as following diagram.
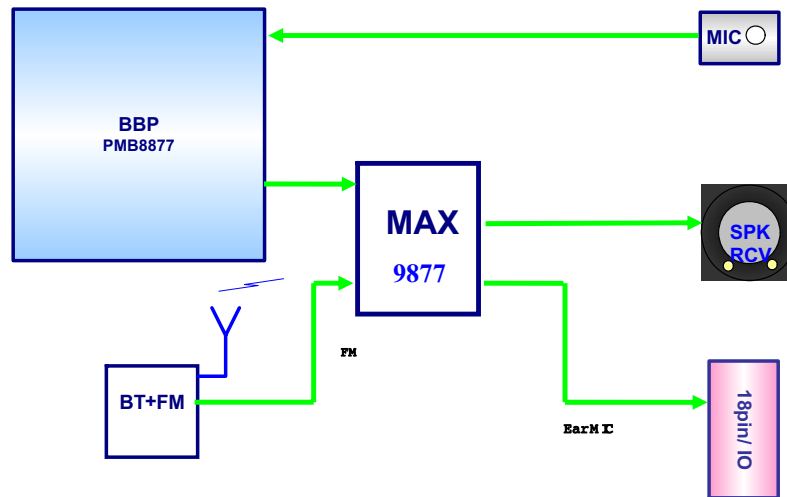
Figure 16 Audio signal flow diagram

3.12.1 Audio amplifier

Audio amplifier sub system IC is an audio power amplifier capable of delivering 1.2 W of continuous average power into a mono 8ßŸ load, 50mW per channel of continuous average power into stereo 32Ω ßŸ single-ended (SE) loads. The MAX9877 features a 32-step digital volume control and ten distinct output modes. The digital volume control, output modes (mono/SE/OCL) are programmed through a two-wire I2C interface that allows flexibility in routing and mixing audio channels.
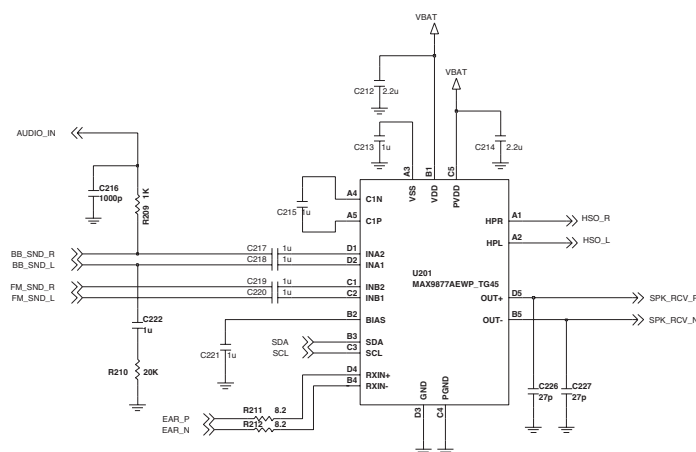
Figure 17 Audio amplifier PMIC

3.12.2 Microphone circuit
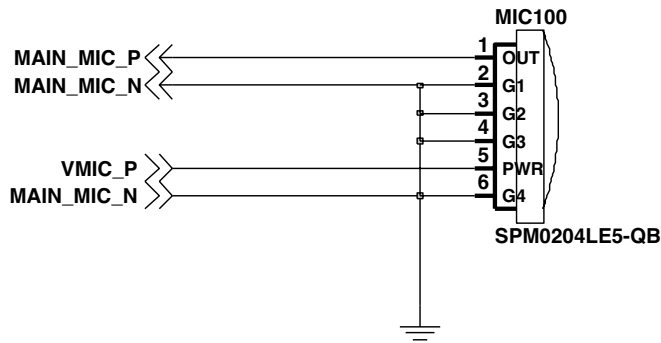
Figure 18 Microphone circuit

3.13 Charging circuit

ISL9221 accepts two power inputs, normally one from a USB (Universal Serial Bus) port and the other from a desktop cradle.

The ISL9221 features 28V and 7V maximum voltages for the cradle and the USB inputs respectively.

Due to the 28V rating for the cradle input, low-cost, large output tolerance adapters can be used safely.
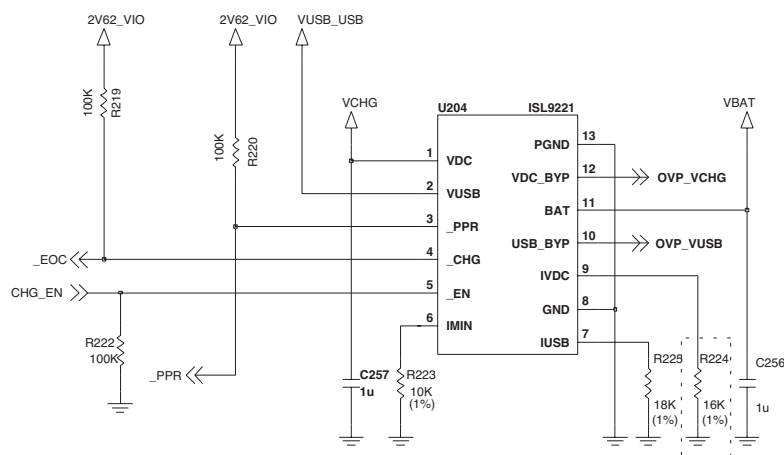

Figure 19 Charging circuit

3.14 FM radio & BLUETOOTH

■ FM radio

Simultaneous operation with Bluetooth

· Support of US/Europe (87.5 to 108 MHz) and Japanese (76 to 90 MHz) FM band

· Wide dynamic range AGC

· Soft mute and stereo blend

· Adjustment-free stereo decoder and AFC

· Autonomous search tuning function (up/down) with programmability (threshold setting)

· RDS demodulator

· Audio output available over Bluetooth audio interface or dedicated audio output

· Control of FM via Bluetooth HCI or I2C

· Adaptive filter to suppress narrow band interference in the FM channel

■ Bluetooth

General Features

- Small outline by LTCC substrate built-in RF function and Resin mold

- Integrated top BPF for Bluetooth and FM radio

- Integrated RDS/RBDS demodulator and decoder

- Bluetooth® 2.1+EDR conformity

- Secure Simple Pairing (SSP)

- Encryption Pause Resume (EPR)

- Enhance Inquiry Response (EIR)

- Link Supervision Time Out (LSTO)

- Sniff Sub Rating (SSR)

- Erroneous Data (ED)

- Packet Boundary Flag (PBF)

- WLAN coexistence including 802.15.2 three-wire coexistence support

- UART Interface

- PCM Interface

- I_2S Interface

- I_2C Interface

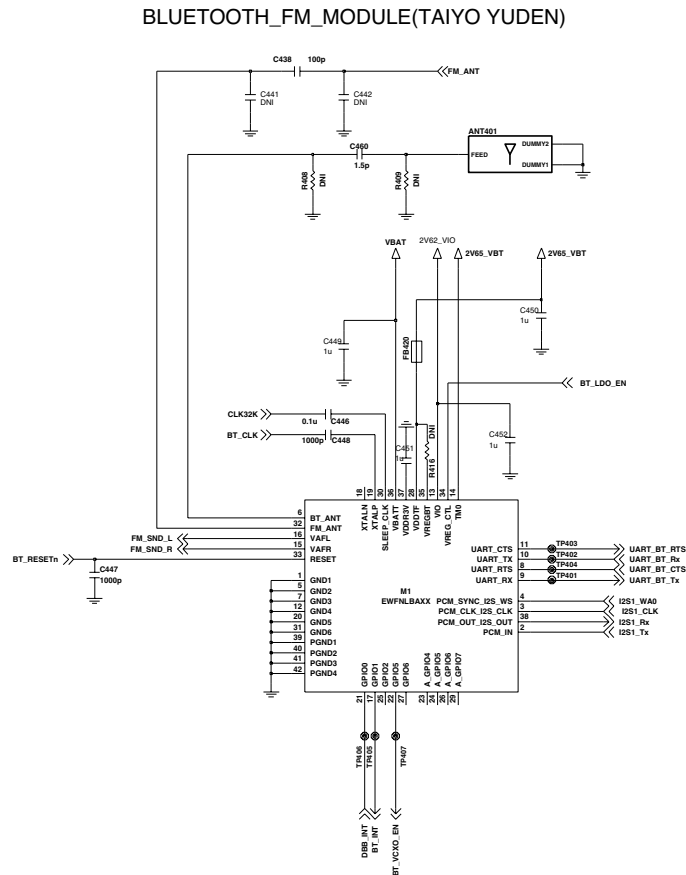BLUETOOTH_FM_MODULE(TAIYO YUDEN)

Figure 20. Bluetooth / FM Radio Circuit Diagram

Bluetooth Radio

・Common TX/RX teminal simplifies external matching, eliminates external antenna switch

・No external trimming is required In production

・Bluetooth v2.1 + EDR Specification compliant

Bluetooth Transmitter

・+6 dBm RF Transmit power with level control from on-chip 6-bit DAC over a dynamic range > 30dB

・Class 1 and Class 2 support without the need for an external power amplifier or TX/RX switch.

Bluetooth Receiver

・Integrated channel filters

・Digital demodulator for improved sensitivity and co-channel rejection

・Real time digitized RSSI available on HCI interface

・Fast AGC for enhanced dynamic range

・Channel classification for AFH

Synthesiser

· Fully integrated synthesizer requires no external VCO varactor diode, resonator or loop filter
· Compatible with crystals between 7.5 and 40MHz(in multiples of 250KHz) or an external clock

Audio

· Single-ended stereo analogue output
· 16-bit 48 kHz digital audio bit stream output

Baseband and Software

· Internal 48Kbyte RAM, allows full speed data transfer, mixed voice and data, and full piconet operation, including all medium rate packet types
· Logic for forward error correction, header error control, access code correlation. CRC, demodulation, encryption bit stream generation, whitening and transmit pulse shaping. Supports all Bluetooth v 2.0 + EDR features incl. ESCO and AFH
· Transcoders for A-law, u-law and linear voice from host and A-law, u-law and CVSD voice over air

Physical Interfaces

· Synchronous serial interface up to 4Mbits/s for system debugging
· UART interface with programmable baud rate up to 4Mbits/s with an optional bypass mode
· USB v1.1 interface
· I2C slave for FM
· Two audio PCM interfaces (input and output)
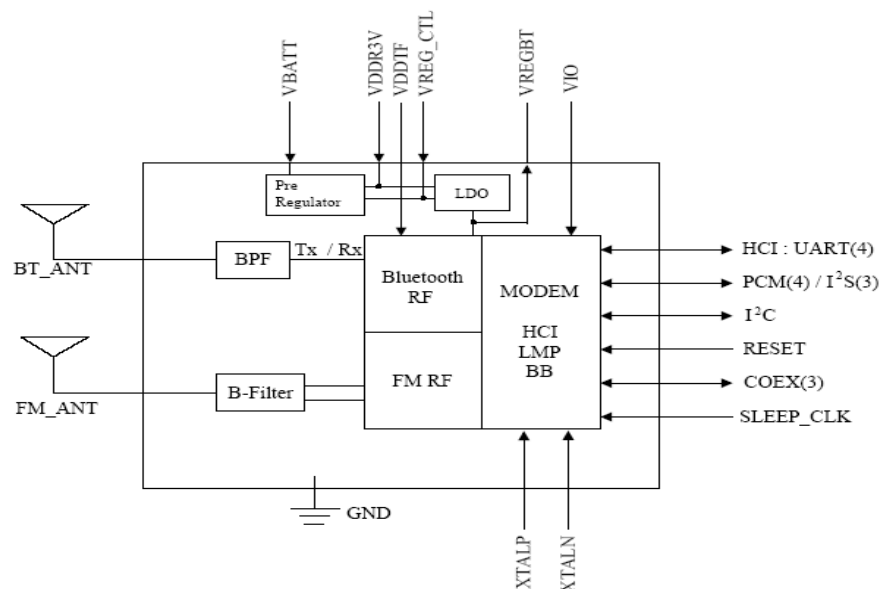· Analogue stereo (output only)

**Figure 21. Bluetooth / FM Radio Block Diagram**

3.15 18pin Multi Media Interface connector

Table 8. Multi media interface pin assign

	KF350 MMI	
	Pin Function	**Description**
1	FM_ANT	FM radio antenna / Audio ground
2	HS_MIC	Headset microphone signal
3	JACK_TYPE	Accessory type detect
4	HS_OUT_L	Headset left sound
5	HS_OUT_R	Headset Right sound
6	USB_DP / REMOTE_INT	USB/ Remote control interrupt
7	USB_DM / REMOTE_ADC	USB/ Remote control Key ADC
8	JACK_DETECT	Headset detect (active low)
9	VBAT	Battery voltage
10	VBAT	Battery voltage
11	RPWRON	Remote power on (active high. 2.8V)
12	VCHG	Charger voltage
13	VCHG	Charger voltage
14	DSR	N.C.
15	VBUS_USB	USB VBUS
16	TX	UART TX data
17	RX	UART RX data
18	GND	Power GND

18PIN MULTIPORT RECEPTACEL
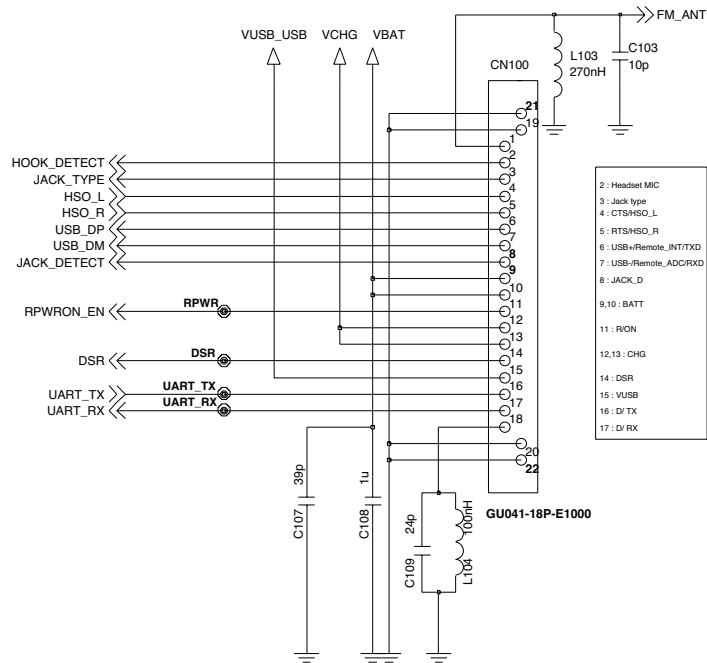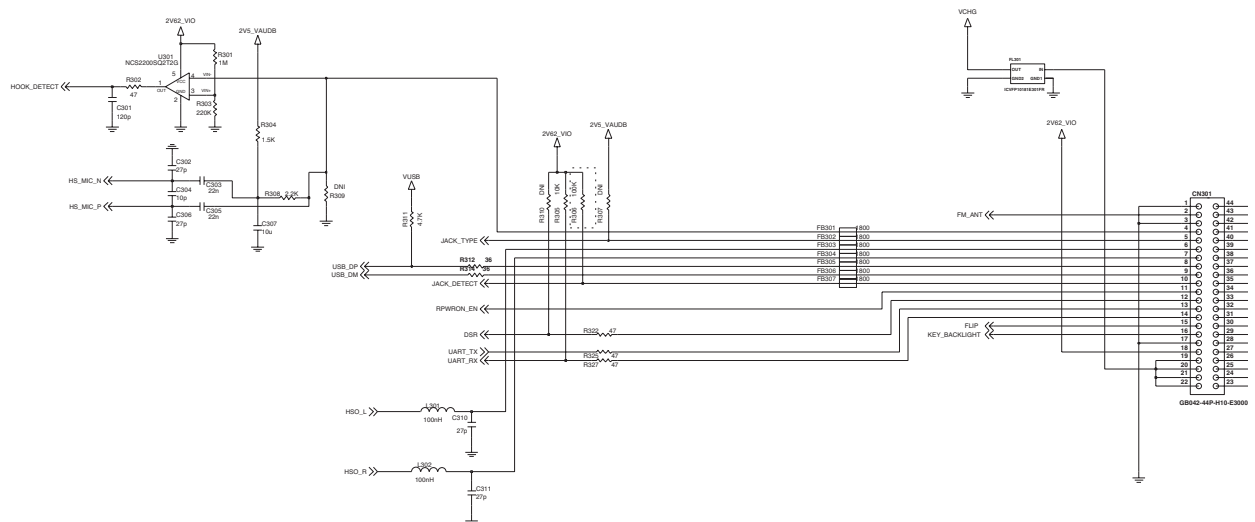

MAIN TO KEY CONNECTOR

Figure 22. MMI 18Pin Connector circuit

3. TECHNICAL BRIEF

[RF circuit Technical Brief]
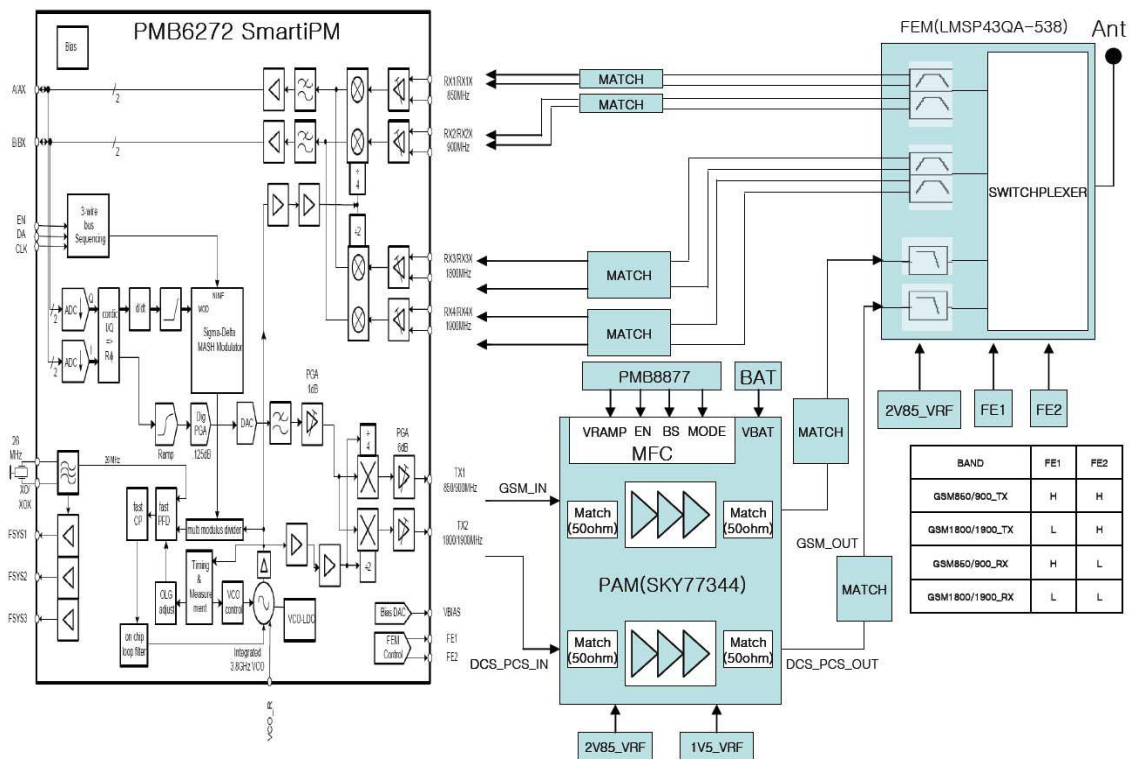
*RF Block Diagram

Figure 23 KF350 RF part Block Diagram

3.16 General Description

The RF transceiver (PMB 6272 SMARTi-PM) is an integrated single chip, quad-band transceiver for GSM850/GSM900/GSM1800/GSM1900 designed for voice and data transfer applications. The transceiver provides an analog I/Q baseband interface and consists of a direct conversion receiver and a quad-band polar transmitter for GSM and EDGE with integrated PGA functionality. Further on a completely integrated SD-synthesizer with HSCSD and GPRS/EDGE capability, a digitally controlled reference oscillator with three outputs, a fully integrated quad-band RF oscillator and a three wire bus interface with all necessary control circuits complete the transceiver.
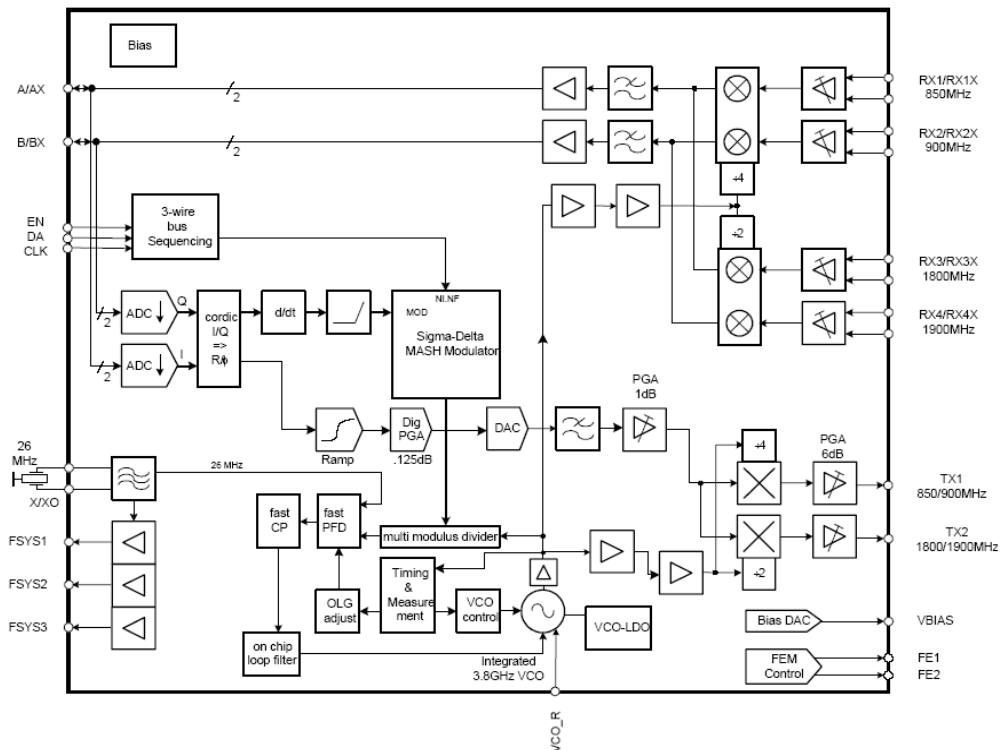

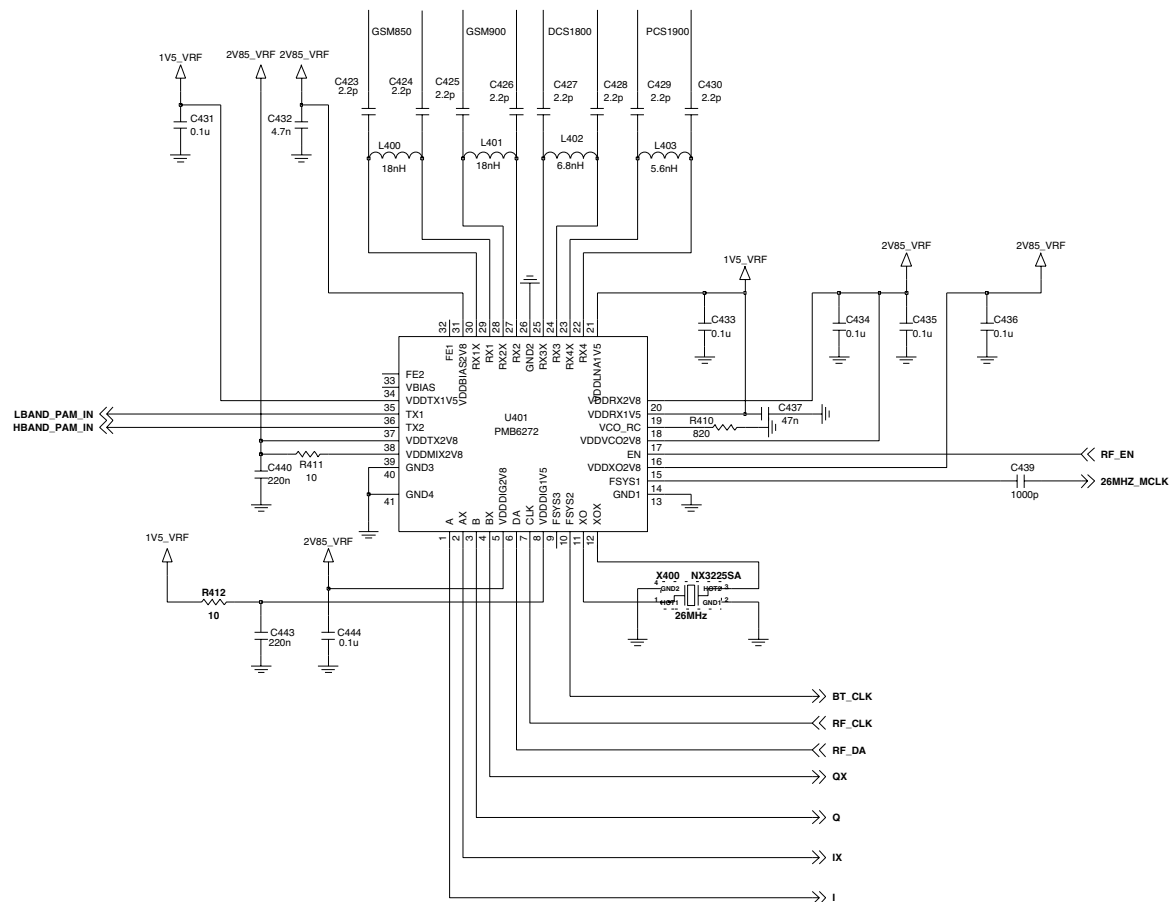**Figure 24 RF transceiver PMB6272 SMARTi-PM functional block diagram**

Figure 25 RF transceiver PMB6272 SMARTi-PM schematic
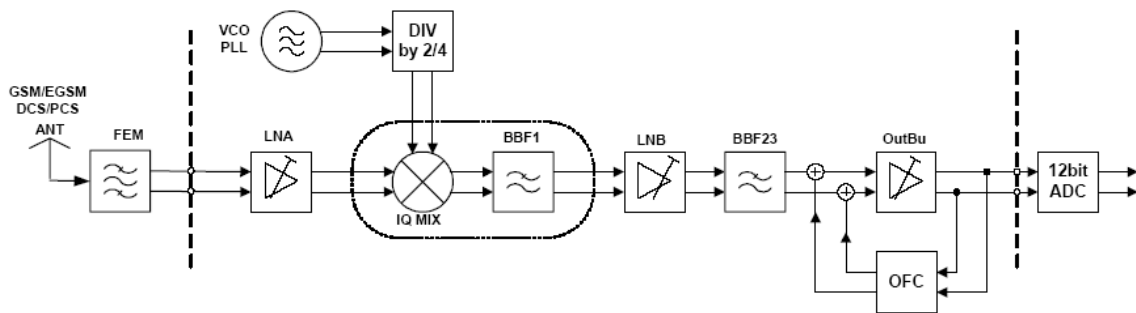
3.17 Receiver part

Figure 26 Receiver part block diagram

The constant gain direct conversion receiver contains all active circuits for a complete receiver chain for GSM/GPRS/EDGE (see Figure 39). The GSM850/900/DCS1800/ PCS1900 LNAs with balanced inputs are fully integrated. No inter-stage filtering is needed. The orthogonal LO signals are generated by a divider-by-four for GSM850/900 band and a divider-by-two for the DCS1800/PCS1900 band. Down conversion to baseband domain is performed by low/high band quadrature direct down conversion mixers. The baseband chain contains a LNB (low noise buffer), channel filter, output buffer and DC-offset compensation.

The 3rd order low pass filter is fully integrated and provides sufficient suppression of blocking signals as well as adjacent channel interferers and avoids anti-aliasing through the baseband ADC. The receive path is fully differential to suppress on-chip interferences. Several gain steps are implemented to cope with the dynamic range of the input signals. Depending on the baseband ADC dynamic range, single- or multiple gain step switching schemes are applicable. Furthermore an automatic DC-offset compensation can be used (depending on the gain setting) to reduce the DC-offset at baseband-output. A programmable gain correction can be applied to correct for front end- and receiver gain tolerances.

3.18 Transmitter part

The GMSK transmitter supports power class 4 for GSM850 and GSM900 as well as power class 1 for DCS1800 and PCS1900. The digital transmitter architecture is based on a very low power fractional-N Sigma-Delta synthesizer without any external components (see Figure39). The analog I/Q modulation data from the baseband is converted to digital, filtered and transformed to polar coordinates. The phase/frequency signal is further on processed by the Sigma-Delta modulation loop. The output of its associated VCO is divided by four or two, respectively, and connected via an output buffer to the appropriate single ended output pin. This configuration ensures minimum noise level. The 8PSK transmitter supports power class E2 for GSM850 and GSM900 as well as for DCS1800 and PCS1900. The digital transmitter architecture is based on a polar modulation architecture, where the analog modulation data (rectangular I/Q coordinates) is converted to digital data stream and is subsequently transformed to polar coordinates by means of a CORDIC algorithm. The resulting amplitude information is fed into a digital multiplier for power ramping and level control. The ready processed amplitude signal is applied to a DAC followed by a low pass filter which reconstructs the analog amplitude information. The phase signal from the CORDIC is applied to the Sigma-Delta fractional-N modulation loop. The divided output of its associated VCO is fed to a highly linear amplitude modulator, recombining amplitude and phase information. The output of the amplitude modulator is connected to a single ended output RF PGA for digitally setting the wanted transmit power. The PA interface of SMARTi-PM supports direct control of standard dual mode power amplifiers (PA's) which usually have a power control input VAPC and an optional bias control pin VBIAS for efficiency enhancement.
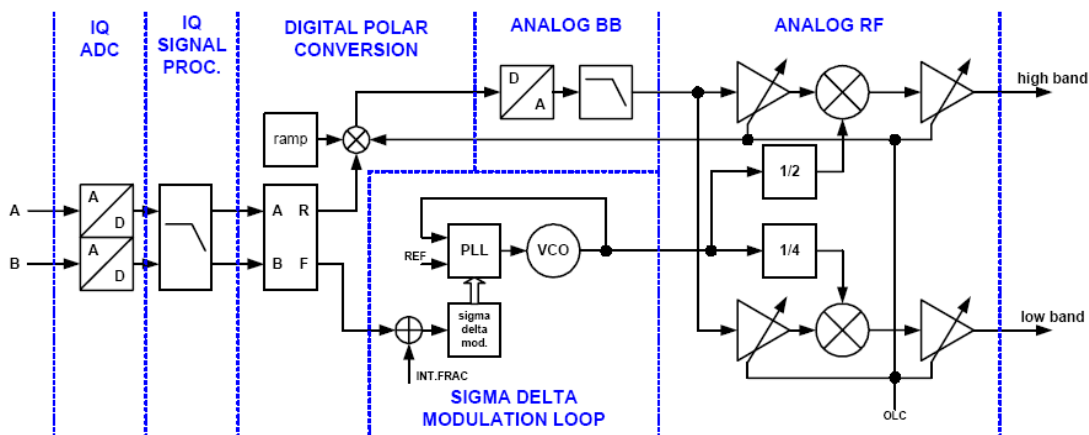

Figure 27 Transmitter part block diagram

In GMSK mode, the PA is in saturated high efficiency mode and is controlled via its VAPC pin directly by the baseband ramping DAC. In this way both up- / down-ramping and output power level are set. In 8PSK mode, the ramping functionality is assured by an on-chip ramping generator, whereas output power is controlled by the PGA's as described above.

3.19 RF synthesizer

The transceiver contains a fractional-N sigma-delta synthesizer for the frequency synthesis in the RX operation mode. For TX operation mode the fractional-N sigma-delta synthesizer is used as Sigma-Delta modulation loop to process the phase/frequency signal. The 26MHz reference signal is provided by the internal crystal oscillator. This frequency serves as comparison frequency of the phase detector and as clock frequency for all digital circuitry.The divider in the feedback path of the synthesizer is carried out as a multi-modulus divider (MMD). The loop filter is fully integrated and the loop bandwidth is about 100 kHz to allow the transfer of the phase modulation. The loop bandwidth is automatically adjusted prior to each slot (OLGA©˘). To overcome the statistical spread of the loop filter element values an automatic loop filter adjustment (ALFA) is performed before each synthesizer startup. The fully integrated quad-band VCO is designed for the four GSM bands (850, 900, 1800, 1900 MHz) and operates at double or four times transmit or receive frequency. To cover the wide frequency range the VCO is automatically aligned by a binary automatic band selection (BABS) before each synthesizer startup.

3.20 DCXO

The SMARTiPM contains a fully integrated 26MHz digitally controlled crystal oscillator (DCXO) with three outputs for the system clock, one output for the GSM baseband and two additional for other subsystems (GPS, Bluetooth, etc.).The only external part of the oscillator is the crystal itself. The frequency tuning is performed along the selected subrange by programming the frequency control word (XO_TUNE) via the three wire bus ("3Wbus")
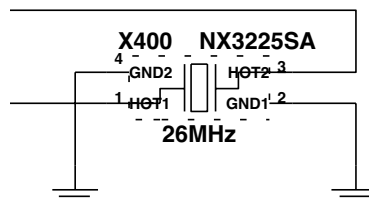
Figure 28 DCXO Schematic

3. TECHNICAL BRIEF

3.21 Front End Module control

Implemented in the S-Gold3 (FL400) are two outputs which are FE1, FE2 for direct control of front end modules with two logic input pins to select RX and TX mode as well as low and high band operation. FEM need 2V85_VRF supply.

MODE	Tx 1GHz	Tx 2GHz	Rx 1GHz	Rx 2GHz
VDD	ON	ON	ON	ON
VC1	ON	OFF	ON	OFF
VC2	ON	ON	OFF	OFF

	VC1 (FE1)	VC2 (FE2)
GSM850 / 900_TX	H	H
GSM 1800 / 1900_ TX	L	H
GSM850 / 900_RX	H	L
GSM 1800 / 1900_ RX	L	L

Figure 29 FEM schematic

3.22 Power Amplifier Module

The TQM7M5005 is an extremely small (5x5x1.1mm3) multi-mode power amplifier module for GSM/EDGE applications. This module has been optimized for high EDGE efficiency and EDGE power class E2 operation while maintaining high GSM/GPRS efficiency. In EDGE mode, the Vramp pin provides a continuously variable bias control to minimize current consumption during backed-off power conditions. The module incorporates two highly integrated InGaP power amplifier die with a CMOS controller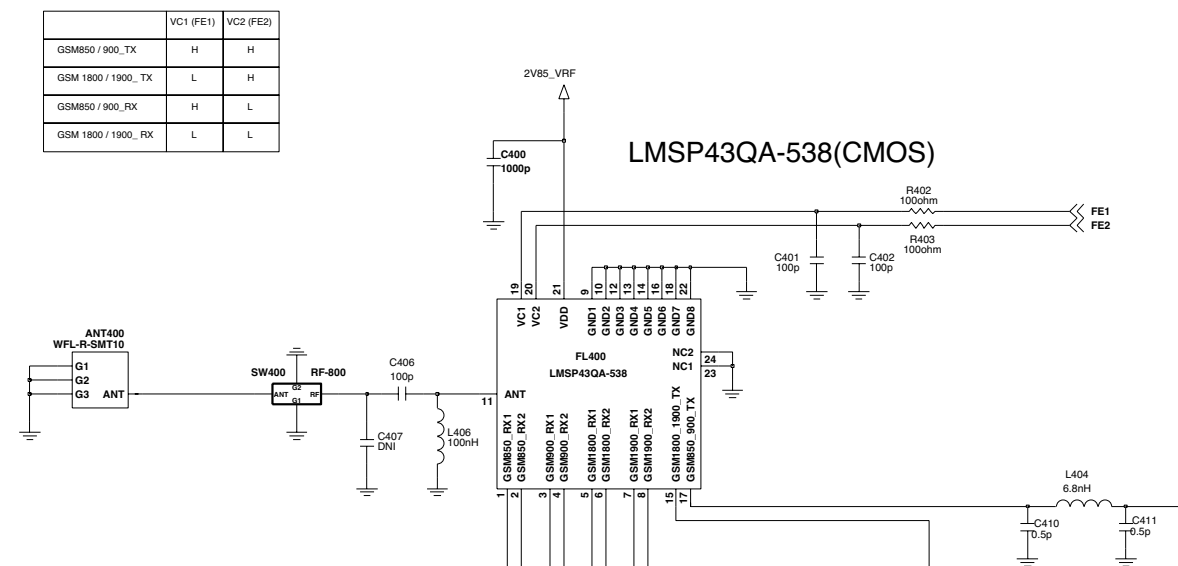. The CMOS controller implements a fully integrated closed-loop power control within the module for GSM Operation. This eliminates the need for any external couplers, power detectors, current sensing etc., to assure the output power level. The latter is set directly from the Vramp input from the DAC. The module has Tx enable, band select, mode (EDGE or GSM) inputs. Module construction is a low-profile over-molded land-grid array on laminate.

Table 10 PAM pin description

Pin #	Description	Function
1	DCS / PCS in	DCS/PCS RF input -- DC blocked
2	MODE SELECT	MODE = High, the PAM operates in EDGE (8PSK) mode MODE = Low, the PAM operates in GMSK mode.
3	BAND SELECT (BS)	BAND SELECT = Low, Low-Band active BAND SELECT = High, High-Band active
4	VBATT	Battery supply voltage, typ. 3.0 – 4.5 V, nom. 1.6A
5	VRAMP	DAC Control Signal (analog). Nominal Vramp range is 0.2 to 1.6V GMSK mode – Controls ramp profile and output power. EDGE mode – Continuous bias adjustment. Reducing Vramp from max of 1.6V reduces current when used at lower power levels.
6	TX_EN	TX_EN = High, PA is enabled for operation. TX_EN = Low, PA is in sleep mode
7	GSM850 / 900 in	GSM850 / GSM900 RF input -- DC blocked
10	GSM850 / 900 out	GSM850 / GSM900 RF output -- DC blocked
12	DCS / PCS out	DCS / PCS RF output -- DC blocked
9, 13	Bypass Cap	Connect 0.01uF bypass capacitor as close to pin as practical
8, 11, 14,	GND	Ground

3.23 Mode Selection

Table 11 Mode Selection

Operating Mode	Mode	Band Select	Tx Enable	Vramp
GMSK, Low Band	Low	Low	High - Enabled Low - Disabled	0.2 to 1.6 VDC
GMSK, High Band	Low	High	High - Enabled Low - Disabled	0.2 to 1.6 VDC
EDGE, Low Band	High	Low	High - Enabled Low - Disabled	TBD to 1.6VDC
EDGE, High Band	High	High	High - Enabled Low - Disabled	TBD to 1.6VDC

MODE circuitry selects GMSK modulation (logic 0) or EDGE modulation (logic 1). VRAMP controls the output power for GMSK modulation and provides bias optimization for EDGE modulation depending on the state of MODE control.

3.24 PAM Schematic
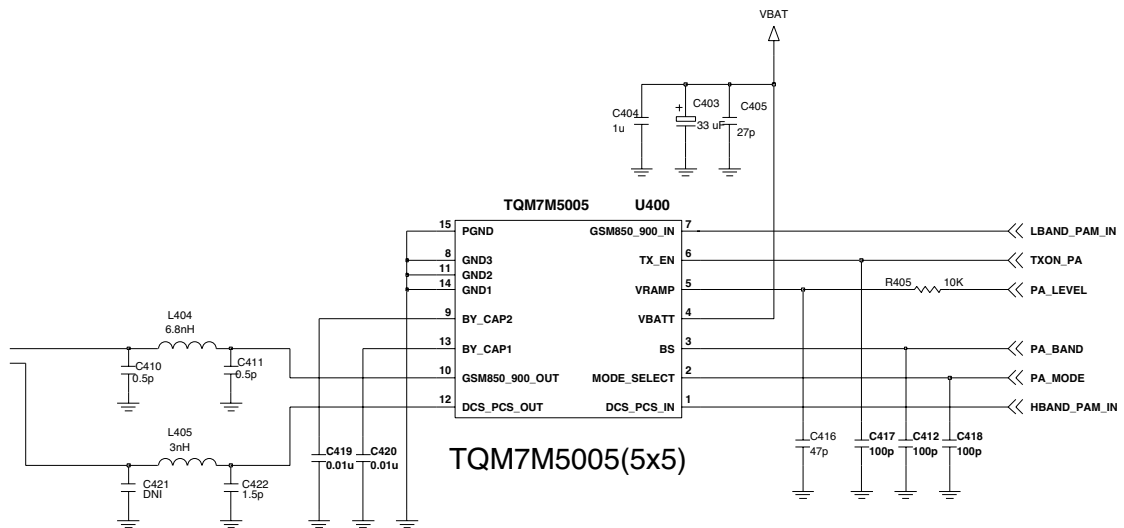
Figure 30 PAM schematic

4. TROUBLE SHOOTING

4.1 Trouble shooting test setup
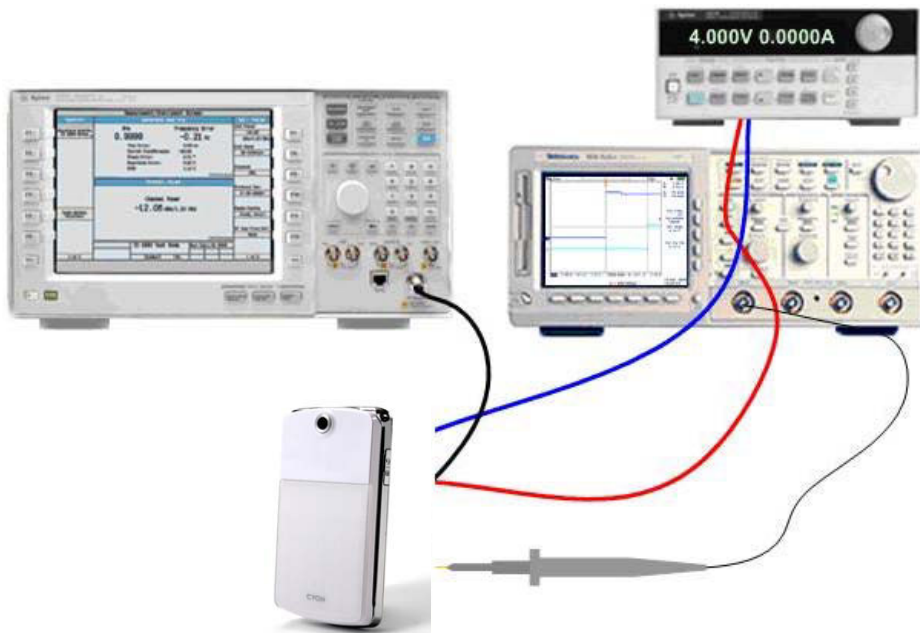
Equipment setup

Power on all of test equipment

- Connect PIF-UNION JIG or dummy battery to the DUT for power up.

- Connect mobile switch cable between Communication test set and DUT when you need to make a

 phone call.

- Follow trouble shooting procedure

4.2 Power on Trouble

Check Points

-Battery Voltage(Need to over 3.35V)

-Power-On Key detection (PWRON signal)

-Outputs of LDOs from PMIC

EXTERNAL RESET

PMIC

LDO	Net name	Output Voltage	Output Current	Usage
SD1	1V35_Core	1.35V	600mA	Core & for LDO
SD2	1V8 _SD	1.8V	300mA	Memory
VAUX	2V9_VAF	2.9V	100mA	Cam Auto Focus
VIO	2V62_VIO	2.62V	100mA	Peripherals
VSIM	2V9_SIM	2.9V	70mA	SIM card
VMME	2V8_VMME	2.9V	150mA	u-SD
VUMTS	2V85_AMP	2.85V	110mA	Headset AMP
VUSB	VUSB	3.1V	40mA	Not used
VLED	VLED	2.9V	10mA	Not used
VAUDIOa	2V5_VAUDA	2.5V	200mA	Stereo headset, Mono earpiece
VAUDIOb	2V5_VAUDB	2.5V	50mA	Analog parts of S-Gold
VRF1	2V8 5_VRF	2.85V	150mA	2.85 V supply for SMARTi-PM RF transceiver
VRF2	1V5 _VRF	1,53V	100mA	1.5 V supply for SMARTi-PM RF transceiver
VRF3	2V6 5_VBT	2.7V	150mA	Bluetooth
VPLL	1V3 5_VPLL	1.35V	30mA	S-GOLD3 PLL
VRTC	2V11_RTC	2.11V	4mA	Real Time Clock
VAFC	VAFC	2.65V	5mA	Not used
VVIB	2V8 _VLCD	2.8V	140mA	LCD

START

Connect power
supply to the DUT
Vbat = over 3.35V

Yes

PWRON signal
Check 3 pin of Q201 → No → Check the
RPWRON,
replace Q201

Yes

_RESET signal
Check 5 pin of U203 → No → Check solder
U203 or replace it

Yes

Check the all LDO s
output
Is it correct? → No → Check solder
U202 or replace it

Yes

Is the 26MHz
clock From U401
signal correct? → No → Check solder X400, U401
or replace it

Check 3 pin of X400
Or Check 14 pin of U401

Yes

Replace main PCB

TP1
Q201

TP2
U203
U202

X400
U401
14pin of U401
3pin of X400

4.3 Charging trouble

Check Points

-Connection of TA (check TA voltage 4.8V)

-Charging Current Path component voltage drop

-Battery voltage

1 Charging method : CC-CV

2 Charger detect voltage : 4.0 V

3 Charging time : 2h 40m

4 Charging current : 380 mA

5 CV voltage : 4.2 V

6 Cutoff current : 110 mA

7 Full charge indication current (icon stop current) : 110 mA

8 Recharge voltage : 4.16 V

4.2V~3.69V   **3.69V~3.53V**   **3.53V~3.43V**   **3.43V~3.35V**

START

18pin IO(CN100)
Is soldered ? — **No** → Resolder the CN100

18pin IO(CN100)

Yes

Source pin
of U204 =
4.8V ? — **No** → The TA can be broken
Change other TA then retest

U204
TP1: Source pin

Yes

Output pin
of U204 =4.2V? — **No** → Check solder U204 or replace it

U204
TP2: Output pin

Yes

Battery voltage
is over 3.4V? — **No** → Waiting until battery Voltage goes up to 3.4V

Yes

Battery thermistor
value
is about 10K? — **No** → Change the Battery retest

Yes
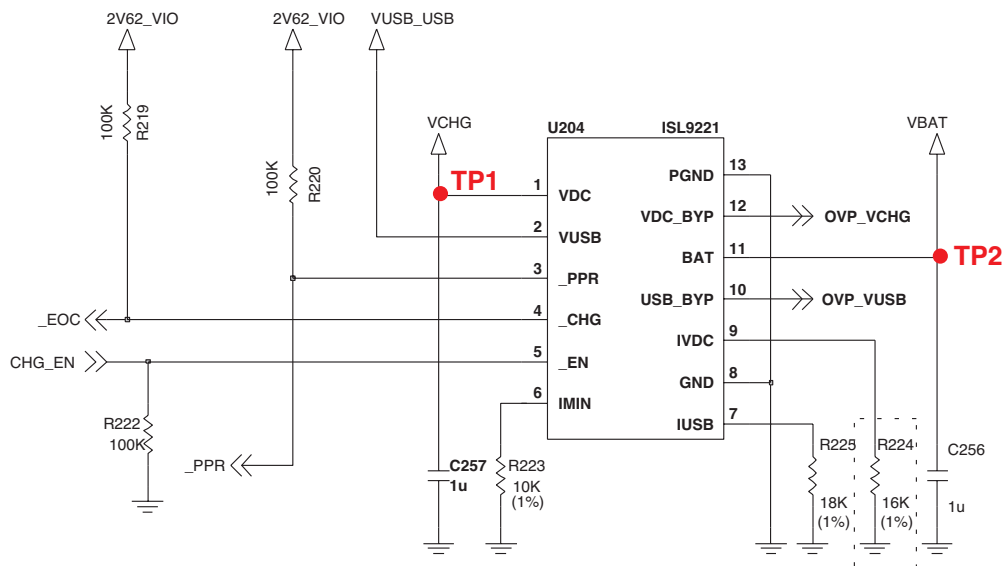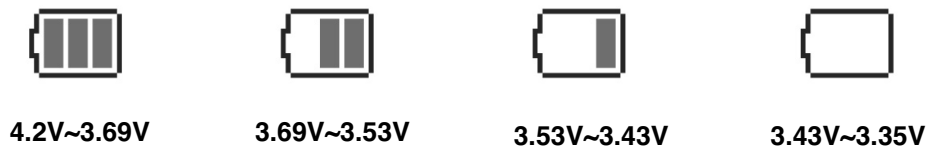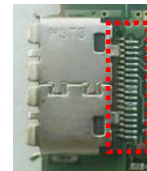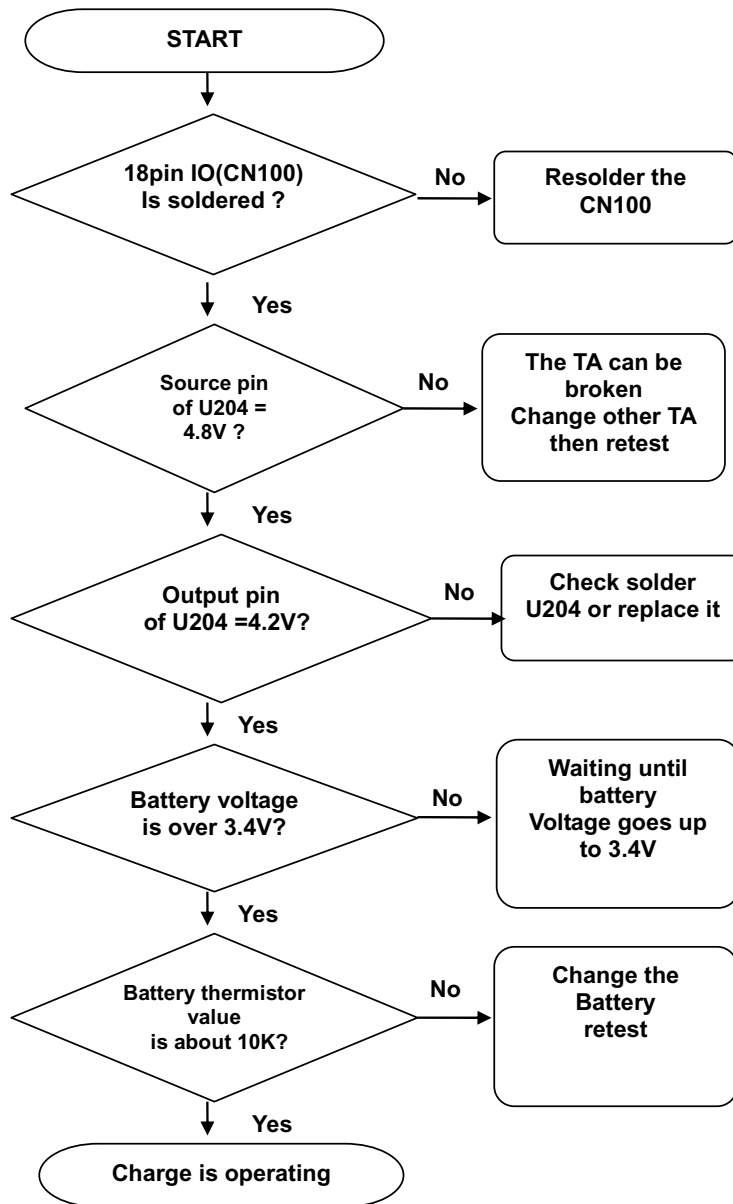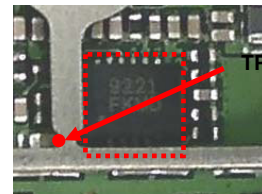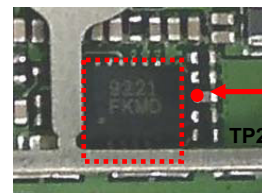
Charge is operating

4.4 LCD display trouble

Check Points

-LCD assembly status (LCD FPCB, Connector on FPCB)

-EMI filter soldering

-Connector combination
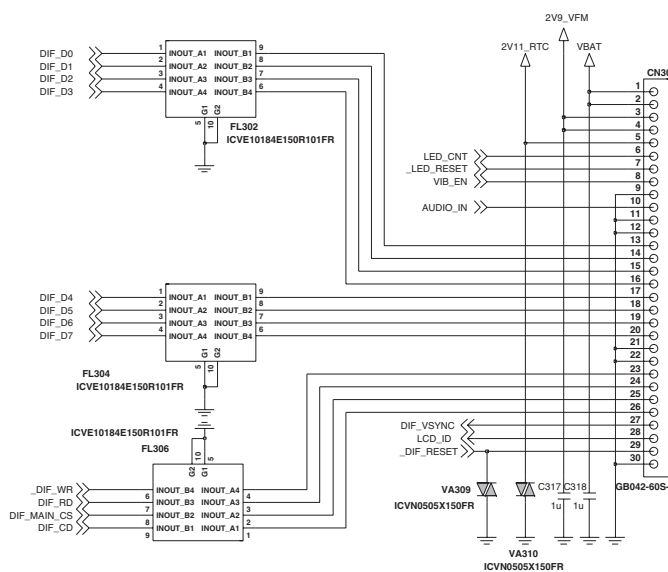
MAIN TO LCD CONNECTOR　　　　　**LCD CONNECTOR**
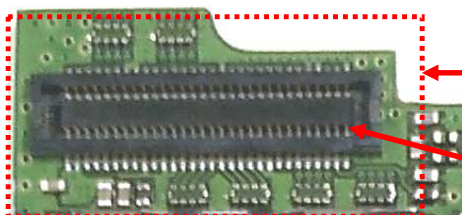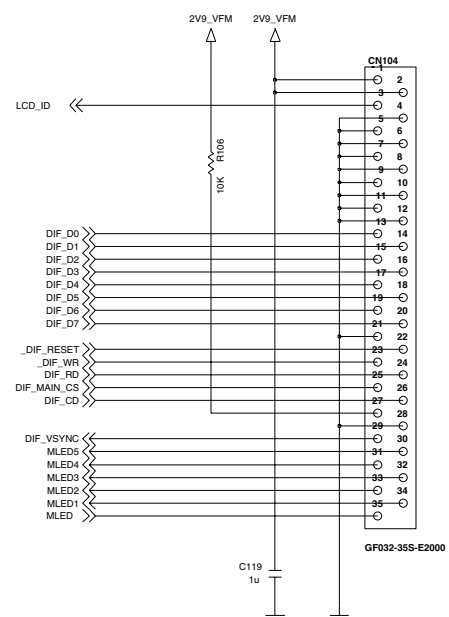
Check signal flow via EMI filter

Check the connection LCD FPCB Connector

Charge Pump

START

Check LCD connector
combination then LCD test
with New LCD

Is LCD FPCB
normal? — No → Replace LCD FPCB

Yes

Signal is normal on
DIF Signal
FL302, FL304, FL306 — No → Check solder and repair Damaged filter

Yes

Assemble

FL302, FL304, FL306
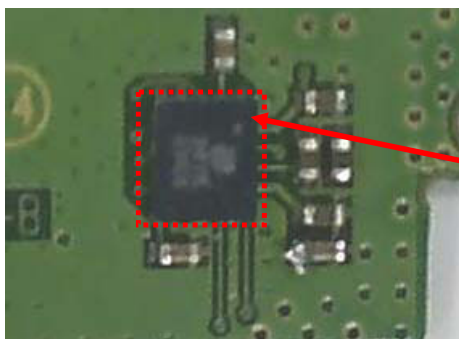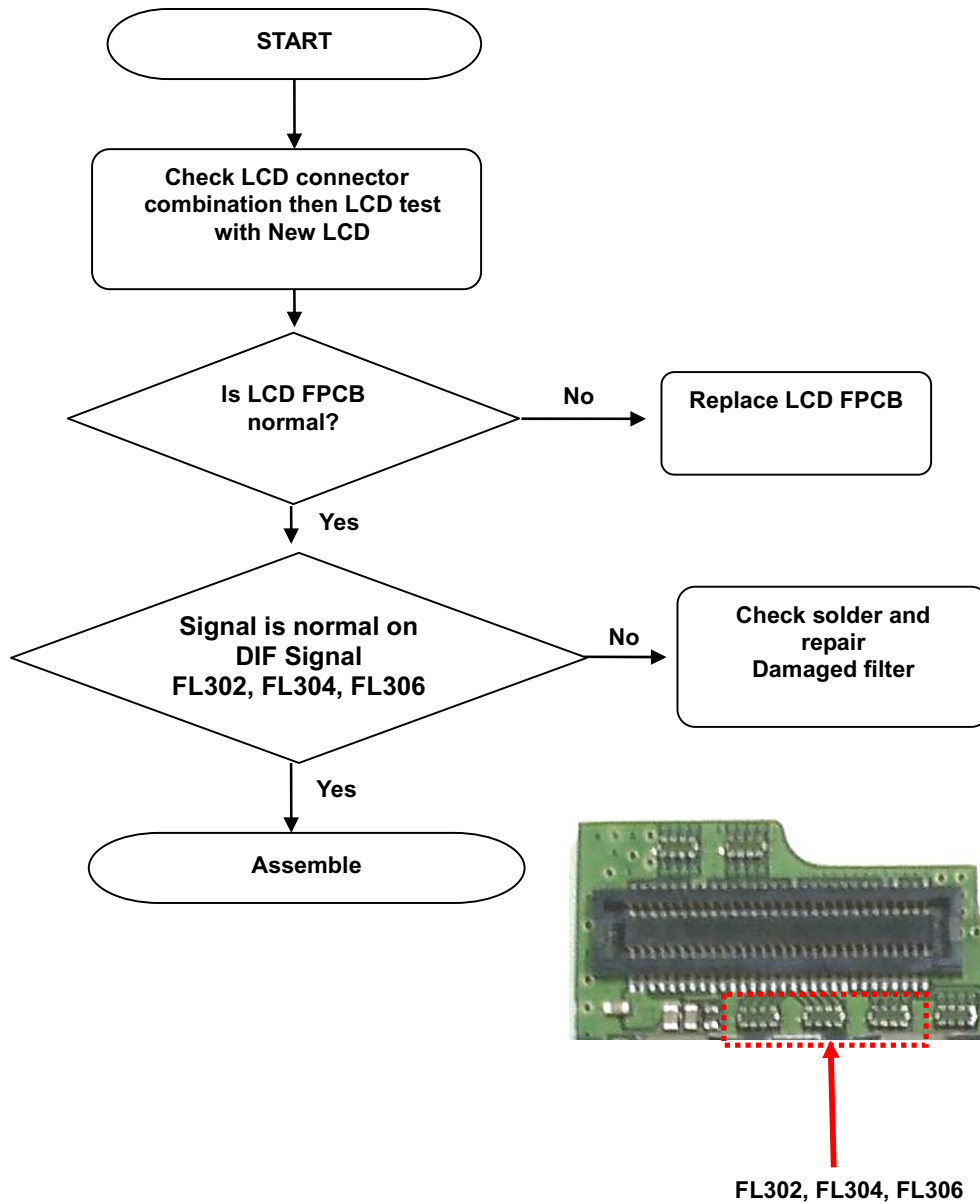
4.5 Camera Trouble

Check Points

- Connectors combination
- FPCB status

SUB TO CAMERA CONNECTOR
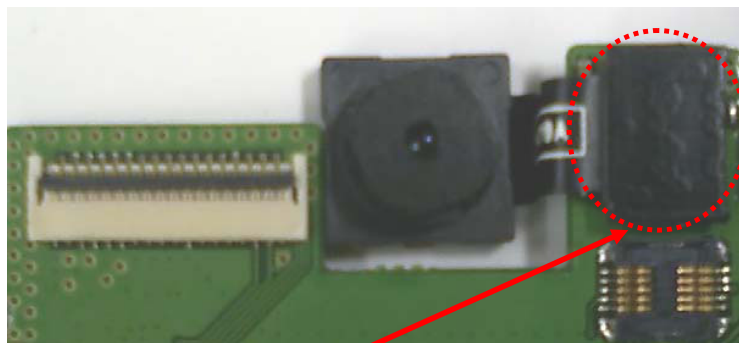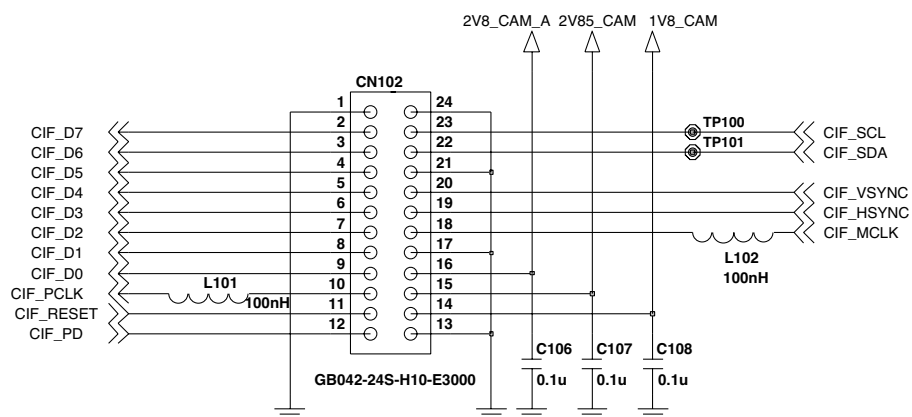
Check the connector combination

START

Check camera connector,
34pin main PCB connector
combination then Camera test
with equipped camera module

Yes

Replace New
Camera module
Working properly?

No → Replace Main PCB

Yes

Replace Camera module

Yes

Assemble
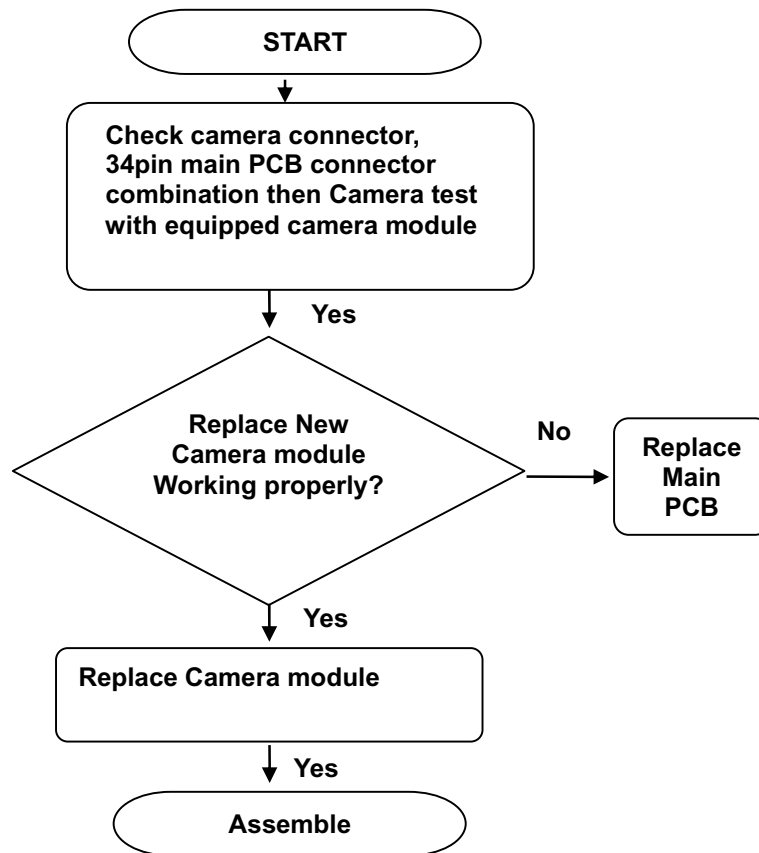
4.6 Receiver & Speaker trouble

Check Points

-Speaker contact

-Audio amp soldering

SPEAKER

```
                          ┌─────────────────┐
                          │     START       │
                          └─────────────────┘
                                   │
                                   ▼
                          ┌─────────────────┐      No    ┌──────────────────┐
                          │ Check Speaker 's │─────────▶ │  Resolder/Replace│
                          │ Contacts are clear.│          │     Speaker      │
                          └─────────────────┘            └──────────────────┘
                                   │ Yes
                                   ▼
                          ╱─────────────────╲    No     ┌──────────────────┐
                         ╱  Input Signal is   ╲────────▶ │ Replace Main Board│
                         ╲  High(C217,C218) ?  ╱         └──────────────────┘
                          ╲─────────────────╱
                                   │ Yes
                                   ▼
                          ╱─────────────────╲    No     ┌──────────────────┐
                         ╱  Output Signal is  ╲────────▶ │  Replace Audio   │
                         ╲  High(C226,C227    ╱         │   AMP(U201).     │
                          ╲      )?          ╱          └──────────────────┘
                          ╲─────────────────╱
                                   │ Yes
                                   ▼
                          ╱─────────────────╲
                         ╱  Pin33,32 of sub   ╲   No     ┌──────────────────┐
                        ╱      board           ╲───────▶ │ Replace FPCB_LCD │
                        ╲    Connector         ╱         └──────────────────┘
                         ╲  (CN103) is High?   ╱
                          ╲─────────────────╱
                                   │ Yes
                                   ▼
                          ╱─────────────────╲    No     ┌──────────────────┐
                         ╱  C103,C102 of      ╲────────▶ │    Replace       │
                         ╲  FPCB_Folder        ╱         │  FPCB_Folder     │
                          ╲ are High?         ╱          └──────────────────┘
                          ╲─────────────────╱
                                   │ Yes
                                   ▼
                          ┌─────────────────┐
                          │    Assemble     │
                          └─────────────────┘
```
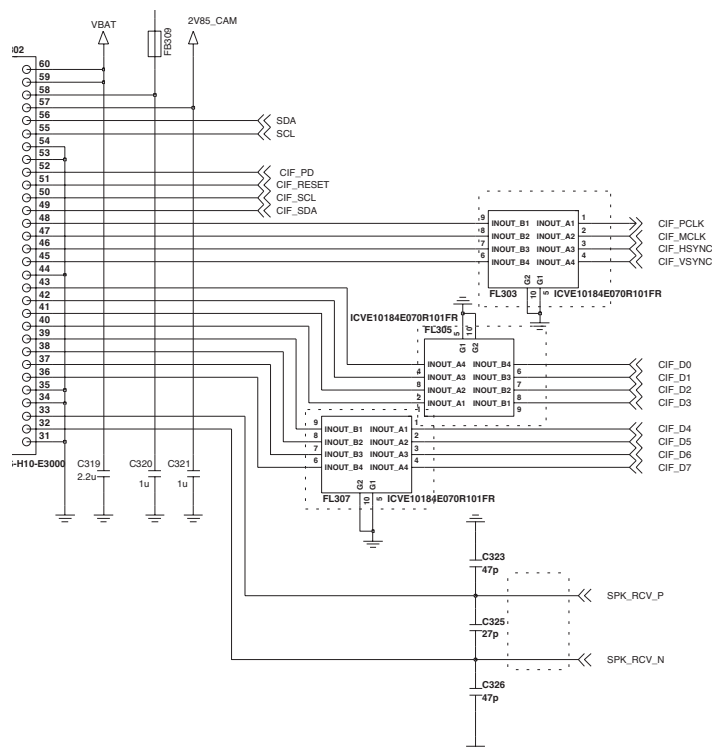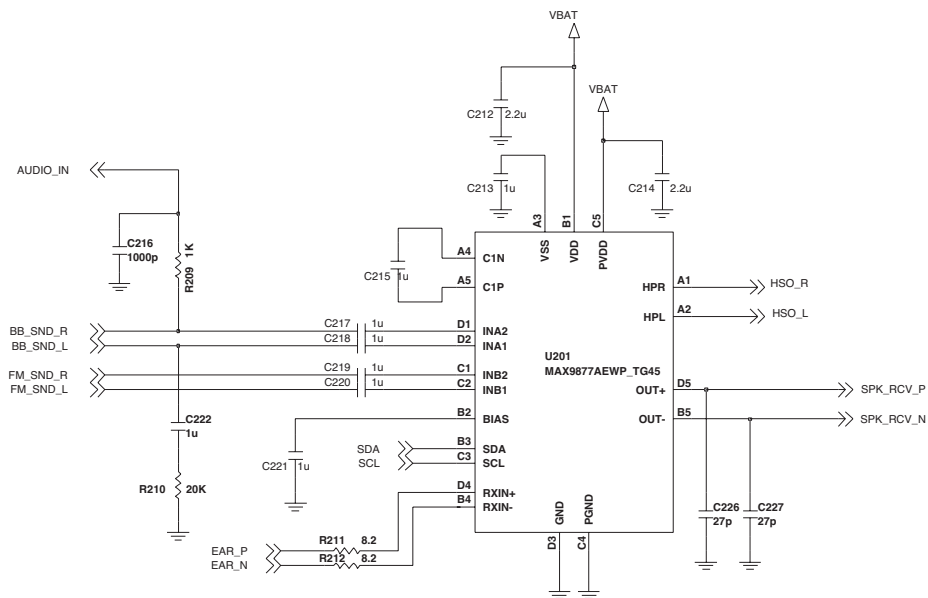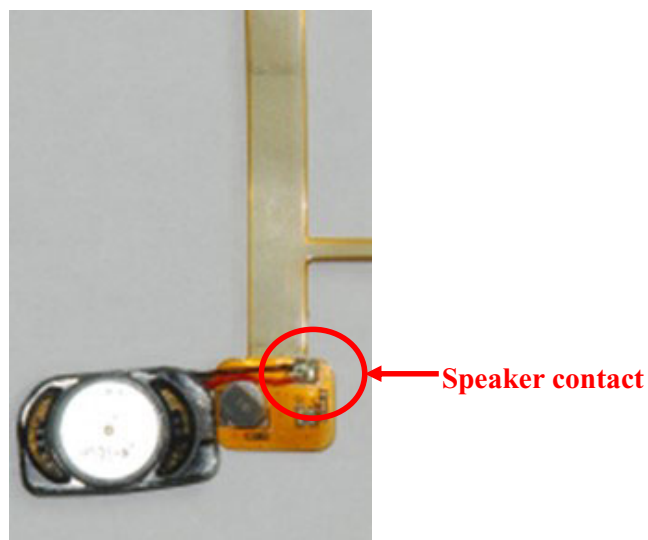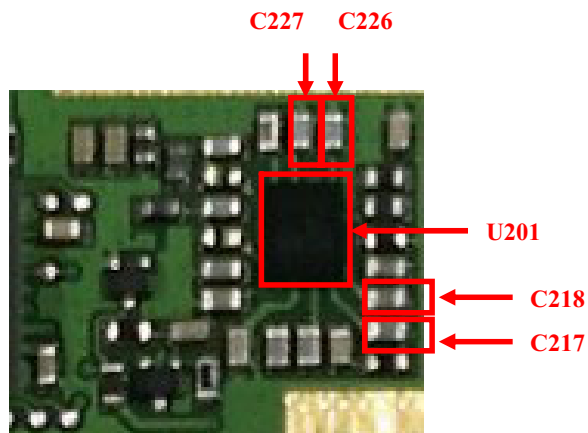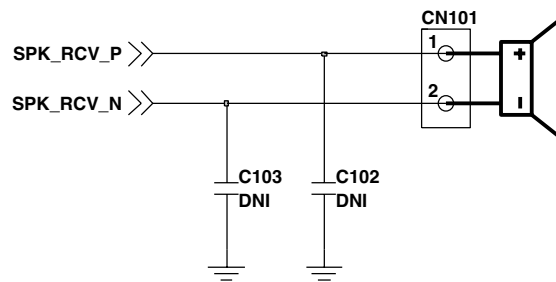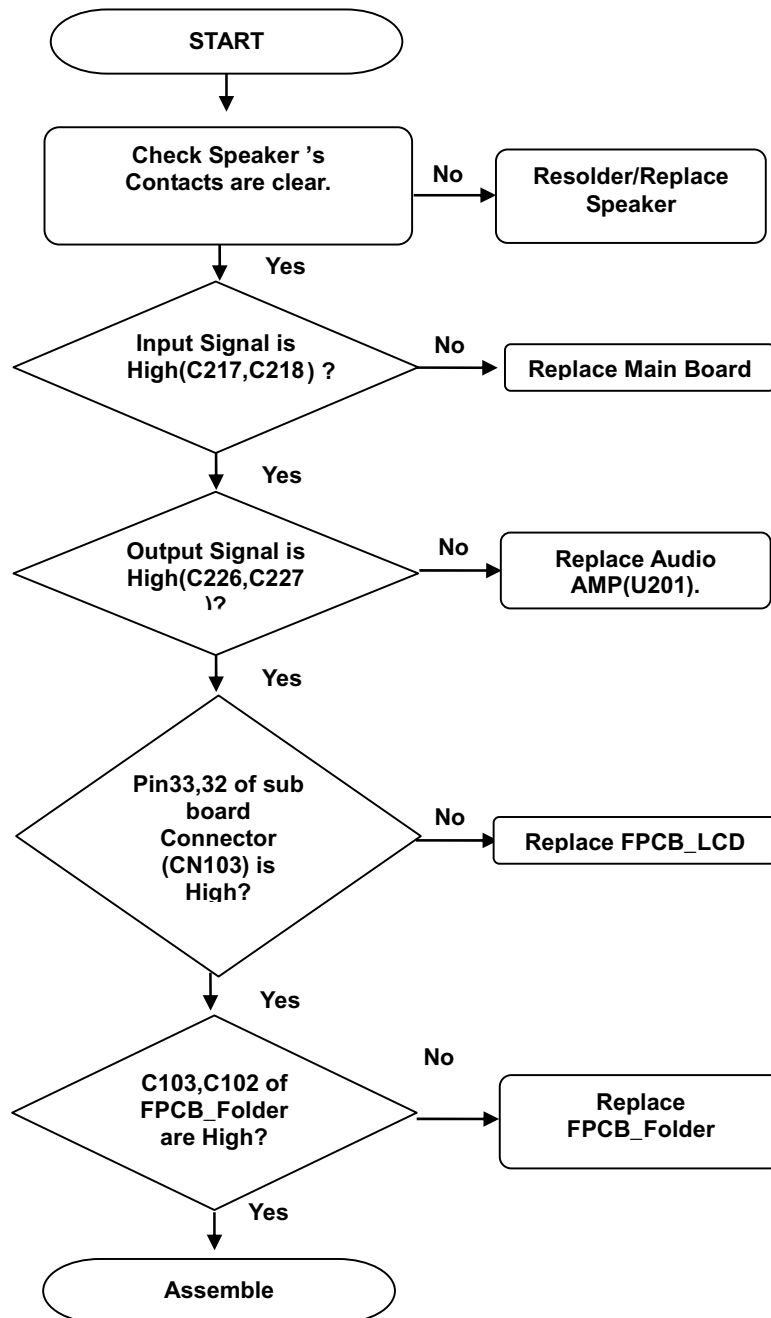
4.7 Microphone trouble

Check Points

-Microphone hole

-Mic. Bias & signal line

CN301

C329
C328 C327

MIC100

START

Check microphone sound hole

Mic bias ON (2.5V)when call?(C329) —**No**→ Check mic. Bias line

Yes

44pin connector (CN301)is good? —**No**→ Repair the 44pin conn. (CN301)

Yes

Check Signal C327, C328 (2.5V) —**No**→ Replace microphone (MIC100)

Assemble
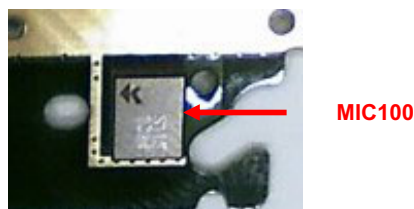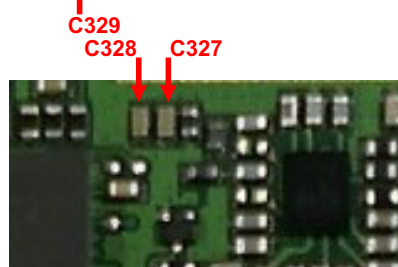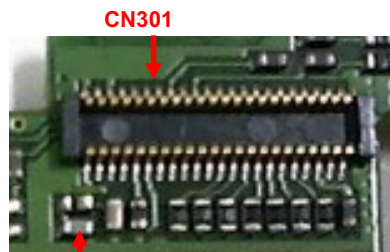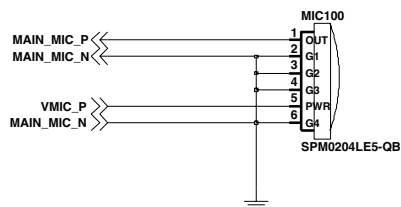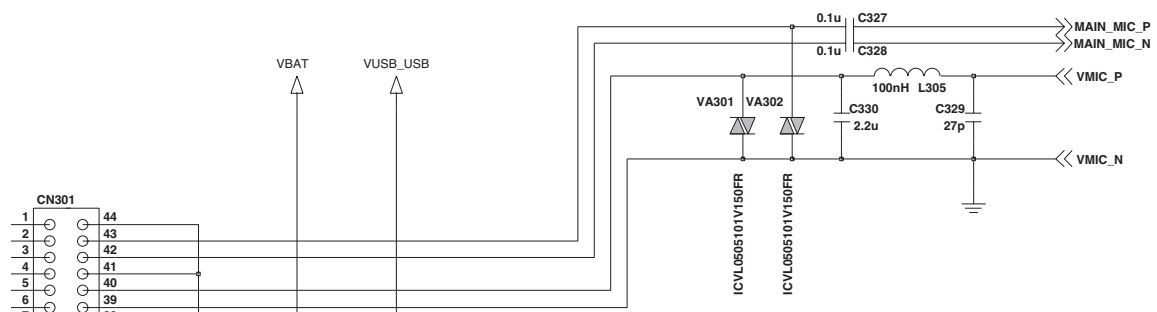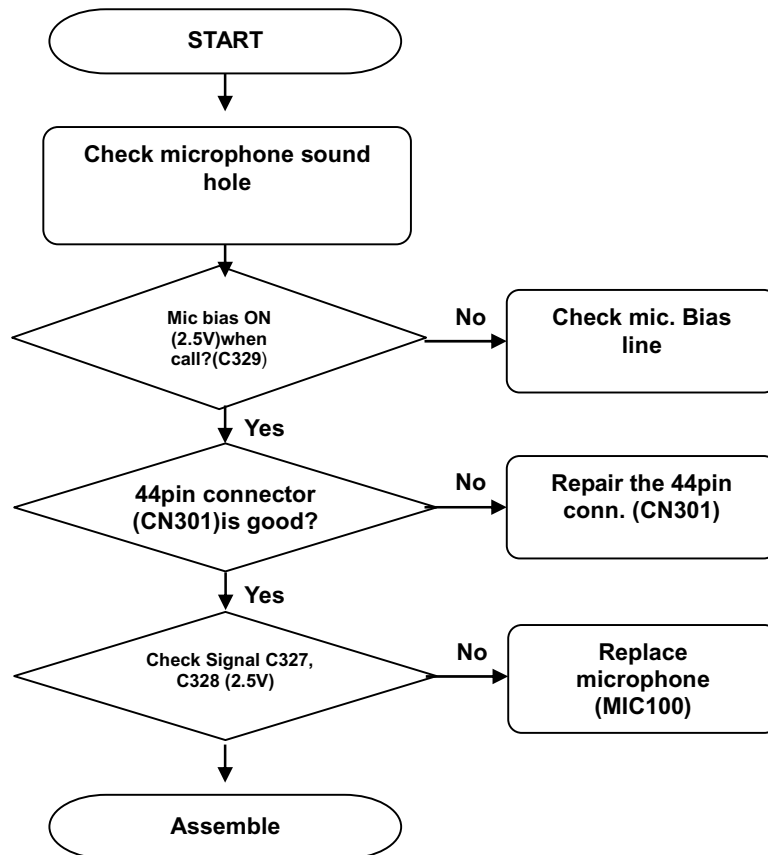
4.8 Vibrator trouble

Check Points

-Vibrator soldering

-IC is working correct

VIBRATOR

PIN3

Check the driver IC(U100) of sub boarad

PIN1

Check the vibrator soldering

```
                        ┌─────────────────┐
                        │      START       │
                        └─────────────────┘
                                 │
                                 ▼
                        ┌─────────────────┐
                        │ Check Vibrator   │
                        │    sodering      │
                        └─────────────────┘
                                 │
                                 ▼
                          ╱───────────╲                    ┌──────────────┐
                        ╱  C100 of      ╲      No           │    Check      │
                       ╱  FPCB_Folder    ╲──────────────▶  │ FPCB_Folder or│
                        ╲   is high?    ╱                   │  replace it   │
                          ╲───────────╱                     └──────────────┘
                                 │ Yes
                                 ▼
                          ╱───────────╲                    ┌──────────────┐
                        ╱ Pin1 of U100  ╲     No            │ Check FPCB_LCD│
                       ╱  (VIB_EN)       ╲─────────────▶   │  or replace it│
                        ╲  is high?     ╱                   └──────────────┘
                          ╲───────────╱
                                 │ Yes
                                 ▼
                          ╱───────────╲
                        ╱ Pin3 of U100  ╲     No
                       ╱  (VIB) is       ╲─────────────▶
                        ╲   high?       ╱
                          ╲───────────╱
                                 │ Yes
                                 ▼
                        ┌─────────────────┐
                        │ Replace Vibrator │
                        │                  │
                        └─────────────────┘
                                 │
                                 ▼
                        ┌─────────────────┐
                        │    Assemble      │
                        └─────────────────┘
```
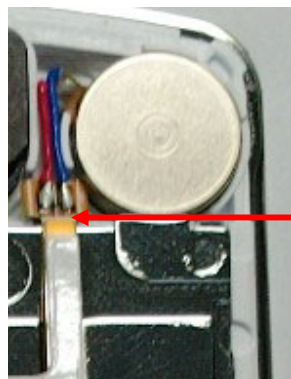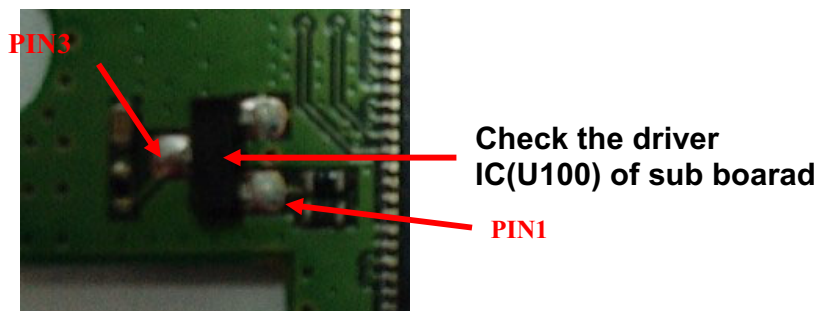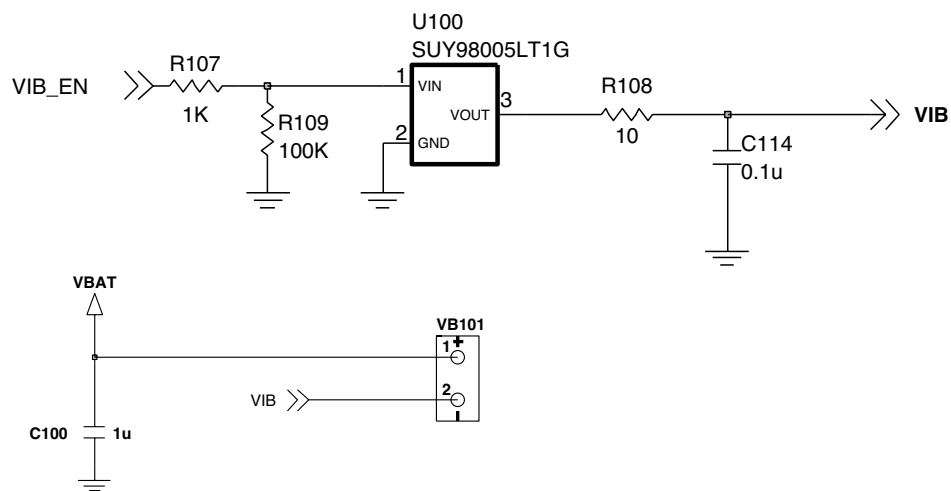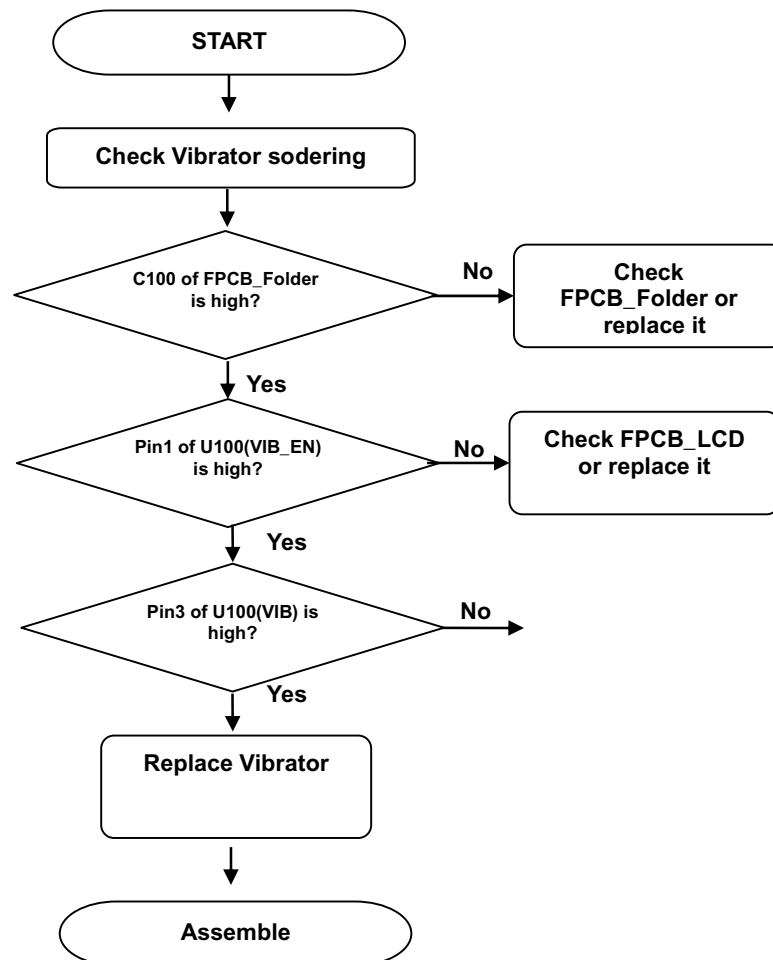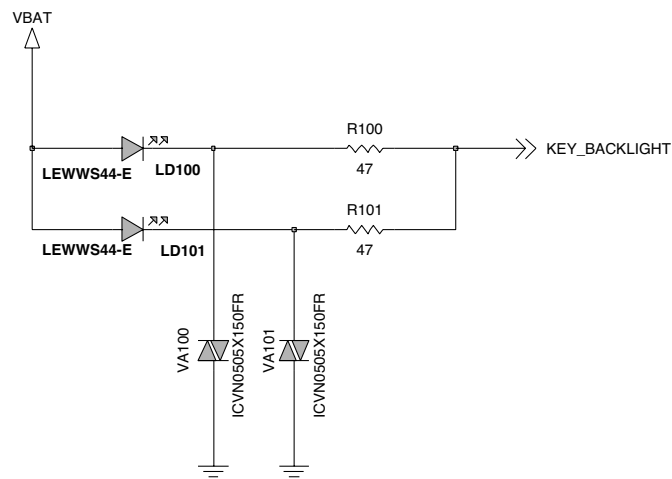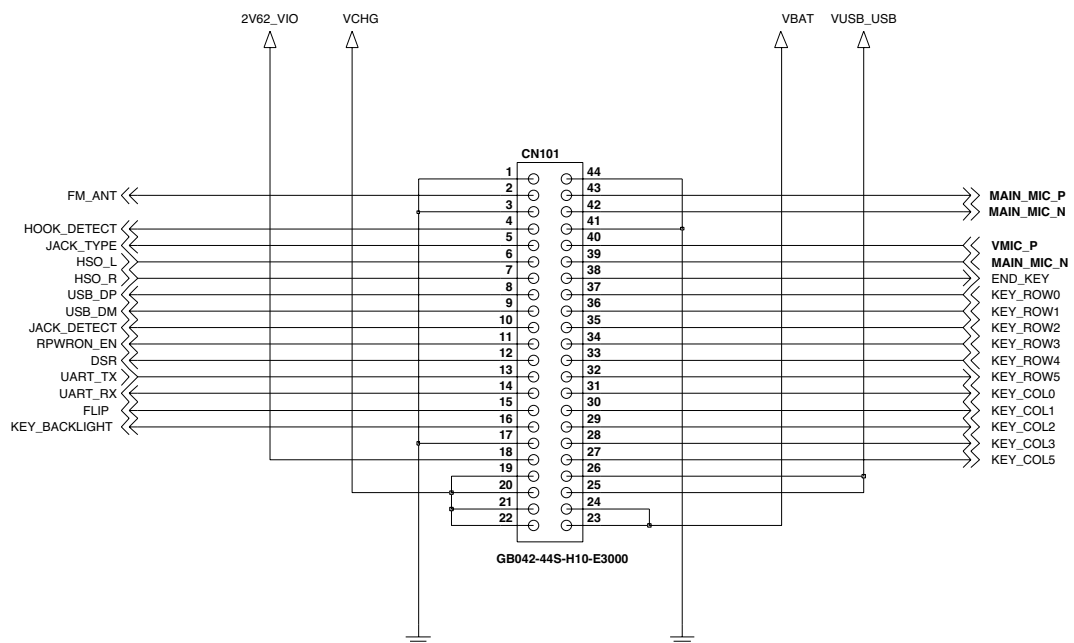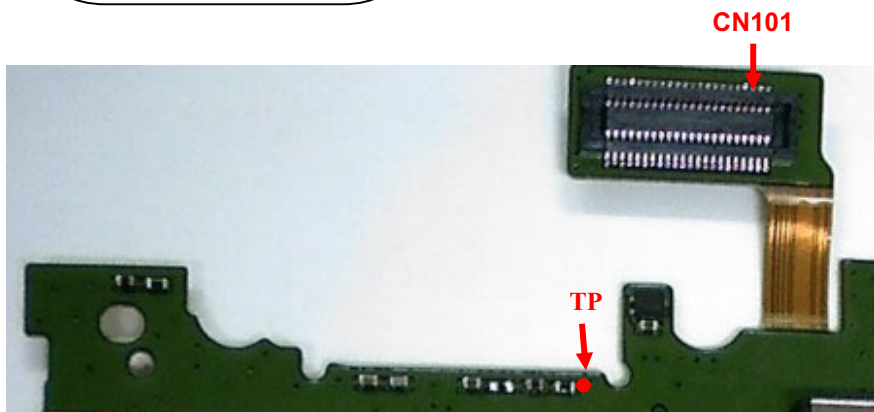
4.9 Keypad back light trouble

Check Points
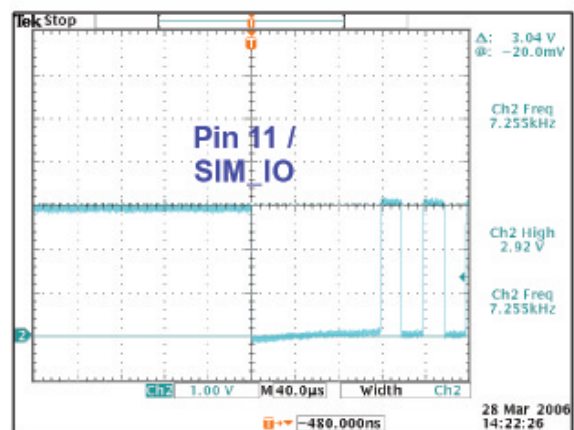
-Signal path is connected well

KEY TO MAIN CONNECTOR

```
        ┌─────────────────┐
        │      START       │
        └────────┬────────┘
                 │
        ┌────────▼────────┐
        │ Check All of LEDs solder │
        │                 │
        └────────┬────────┘
                 │
            ◇─────────◇      No   ┌─────────────────┐
           Check TP1 is  ────────▶│ Check U202 of main │
            2.62V?               │      board       │
            ◇─────────◇          └─────────────────┘
                 │ Yes
            ◇─────────◇      No   ┌─────────────────┐
          44pin connector ──────▶│  Replace 44pin   │
          (CN303) is good?        │     conn.        │
            ◇─────────◇           │    (CN101)       │
                 │ Yes            └─────────────────┘
        ┌────────▼────────┐
        │ Replace KEY FPCB │
        └────────┬────────┘
                 │
        ┌────────▼────────┐
        │     Assemble     │
        └─────────────────┘
```
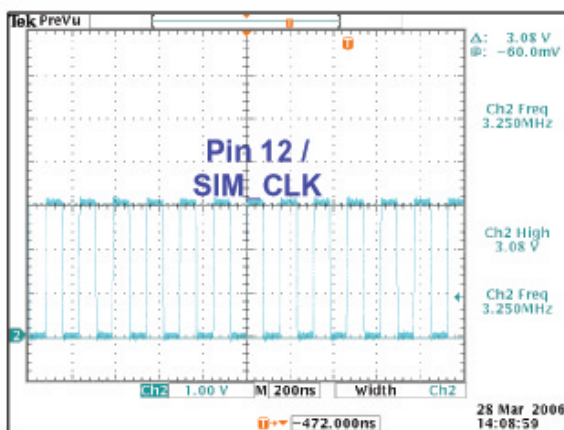
CN101

TP

- 82 -
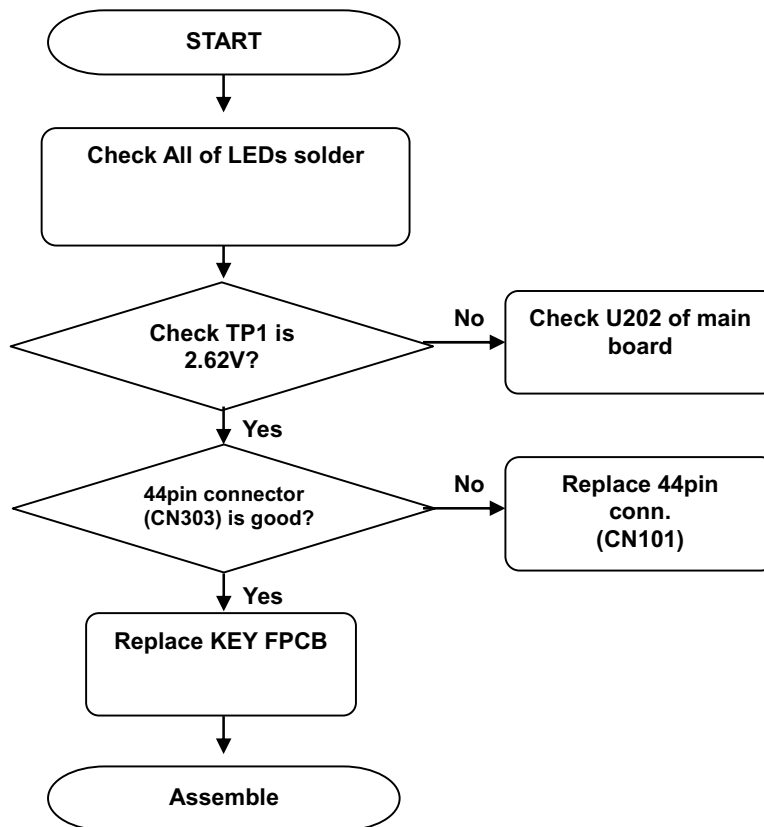
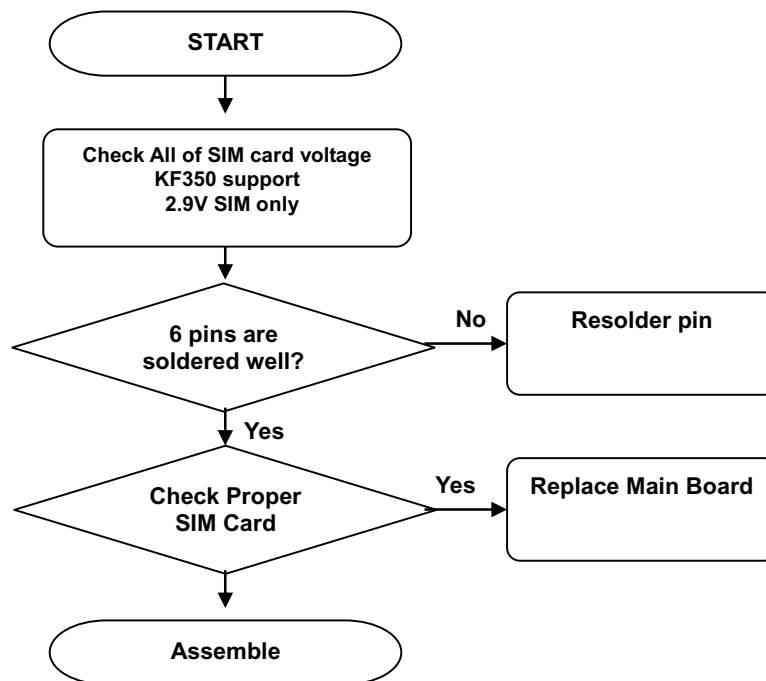## 4.10 SIM & uSD trouble

SIM Check Points

-Power is working

-Socket soldering

-Proper SIM is used

Pin 13 / 2V9_SIM

Check soldering all pin of socket

Pin 12 / SIM_CLK

Pin 11 / SIM_IO

2V9_VMME

2V9_SIM

R329 100K R330 100K R331 100K R332 100K R333 100K C312 1u

R328 4.7K

SIM_RST
SIM_CLK
SIM_IO

C314 0.1u   C315 27p   C316 10p   C313 DNI

MMC_D(1)
MMC_D(0)

MMC_CLK

MMC_CMD
MMC_D(3)
MMC_D(2)

S301

MMC_DETECT   R334 47

2V62_VIO

R335 100K

C322 DNI

C324 1000p

START

**Check All of SIM card voltage
KF350 support
2.9V SIM only**

**6 pins are
soldered well?** — **No** → **Resolder pin**

Yes

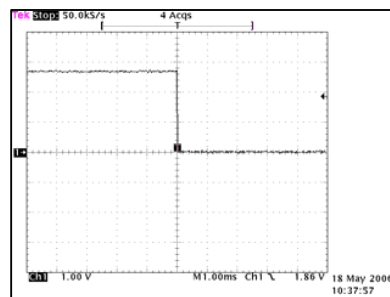**Check Proper
SIM Card** — **Yes** → **Replace Main Board**

Assemble
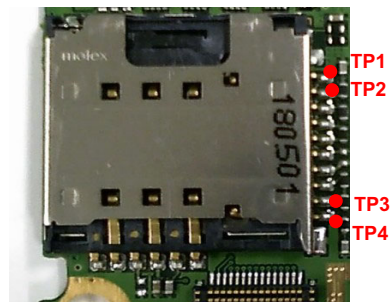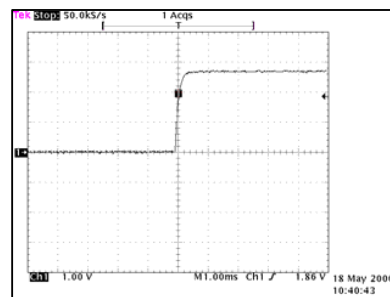
uSD Check Points

-Power is working

-Socket soldering

-Card detect is working

MMC-DETECT PIN

MMC_DETECT SIGNAL

Card insert

Card Deject

START

Check Micro SD card voltage
(2V8_VMME)

TF socket pins
are well soldered

No → Resolder it
(check data line
TP 1~4 is 2.9V
Signal)

Yes

Check proper
uSD?

Yes → Replace Main Board

Assemble

4.11 Photo senser trouble
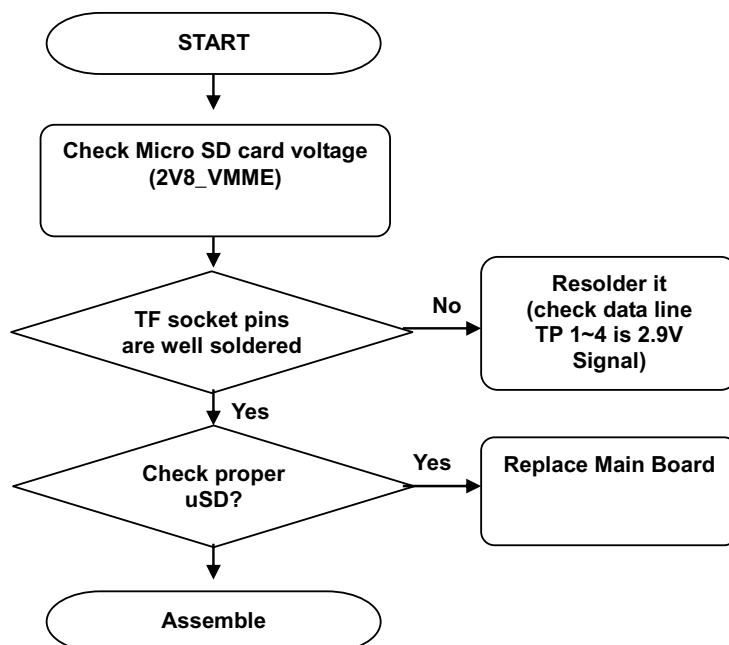
Check Points

- photo senser soldering`

- FPCB_Folder Crack

CHARGE PUMP

U100	APDS-9005-020
1 VCC	OUT 6
2 NC1	NC4 5
3 NC2	NC3 4

2V9_VFM

PHOTO_ADC_IN

R101 12K

C101 DNI

START

Pin1 of photo senser(U100) is high(2.9v)? — **No** → **Check Fpcb_folder and replace**

Yes

Pin6 of U100 is high? — **No** → **Resolder or Replace photo senser**

Yes

FPCB is Crack? — **No** → **Check and Replace charge pump. (U101)**

Yes

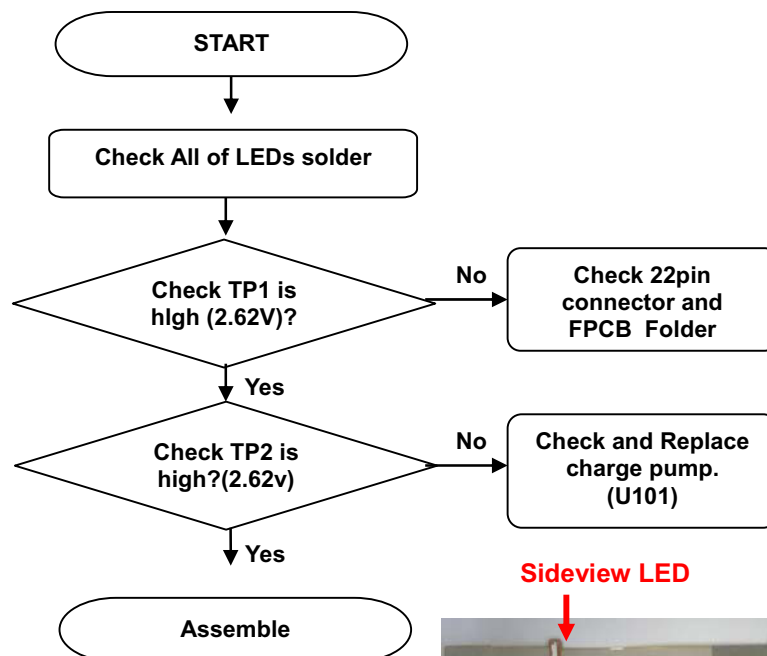**Replace FPCB_Folder and Assemble**

U100(Photo senser)

4.12 sideview LED trouble

Check Points

-Signal path is connected well

CHARGE PUMP

START

Check All of LEDs solder

Check TP1 is hIgh (2.62V)? —**No**→ Check 22pin connector and FPCB Folder

Yes

Check TP2 is high?(2.62v) —**No**→ Check and Replace charge pump. (U101)

Yes

Assemble
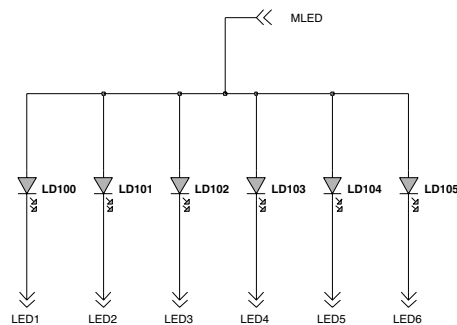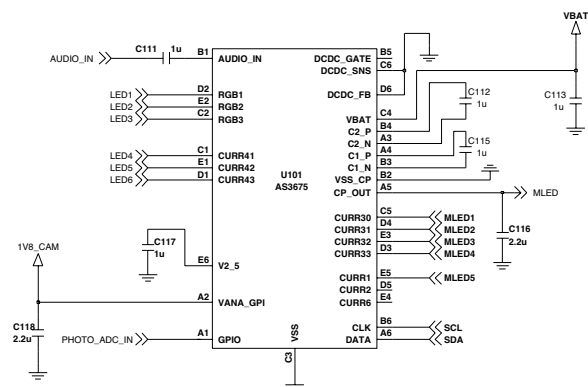
Sideview LED
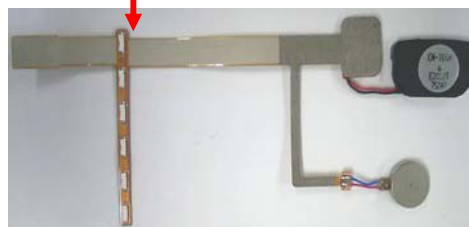
4.13 Trouble shooting of Receiver part

Checking Flow
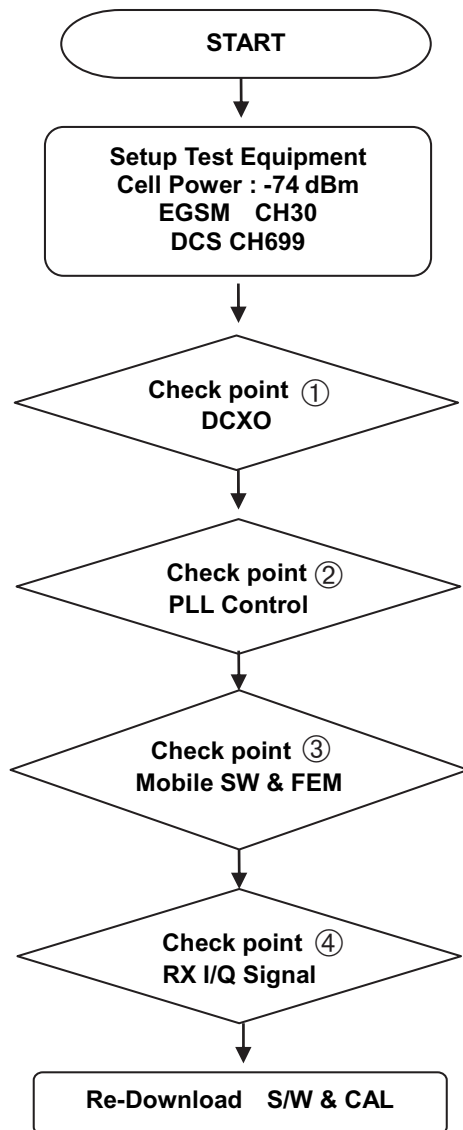
Checking Points

Figure 1. Main PCB
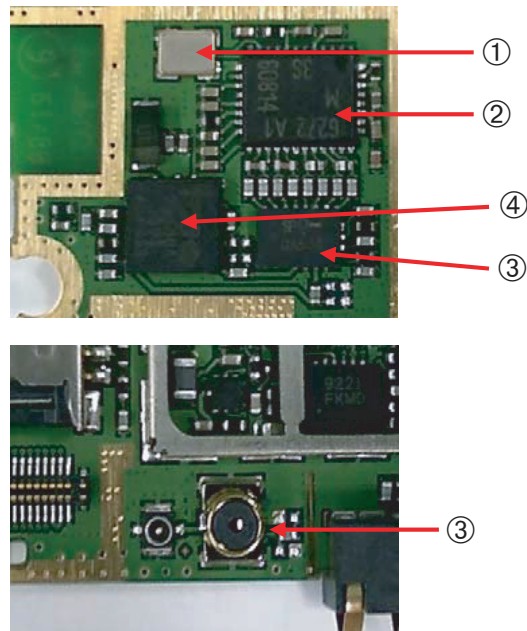
4.13.1. Checking DCXO Circuit

Checking Points

Checking Flow

TP1(C439) : 26MHz

Figur2. DCXO

Is the waveform of TP1(C439) similar to Fig.6?

No → Replace X400

Yes

DCXO Circuit is OK.
See next page to check
PLL Circuit.
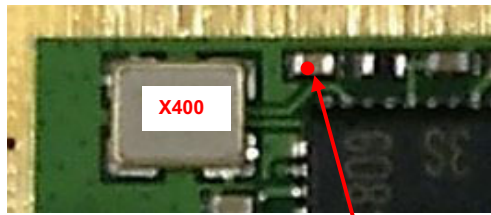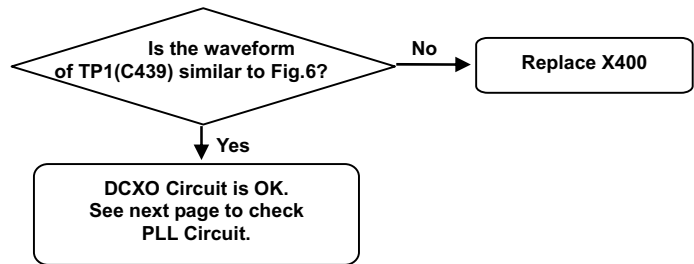
DCXO Circuit Diagram
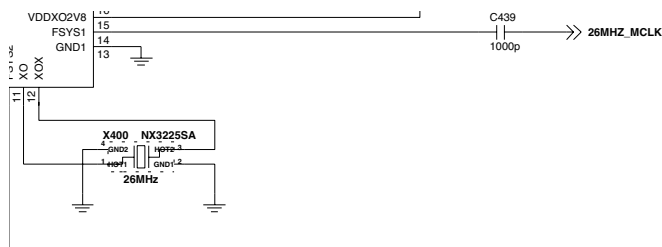
Waveform

Figure 3. DCXO Cicuit

TP1 (C439)
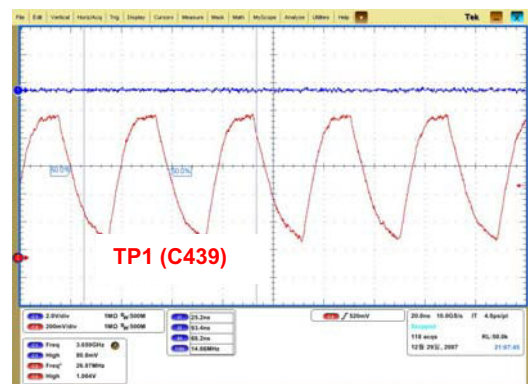
Figure 4. DCXO Waveform

4.13.2. Checking PLL Control signals

Checking Points   Checking Flow
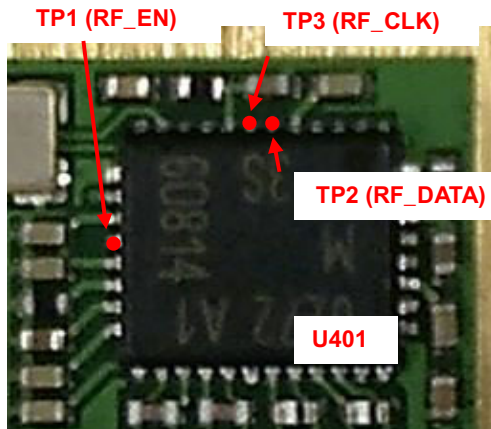
Figure 5. Transceiver
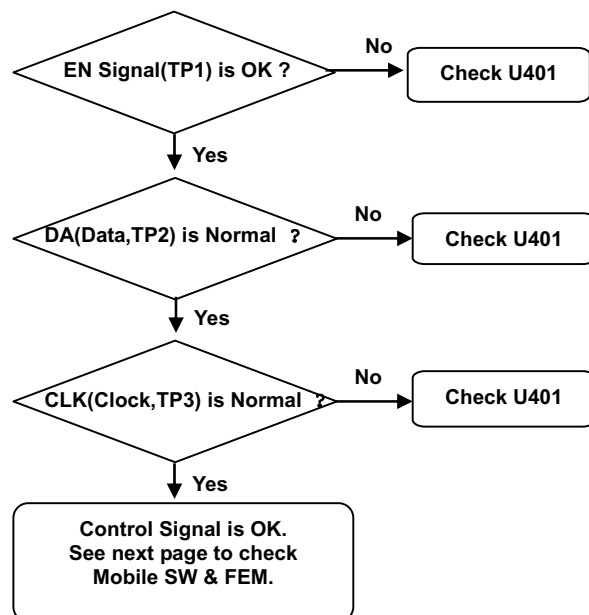
RF Transceiver Circuit Diagram   Waveform
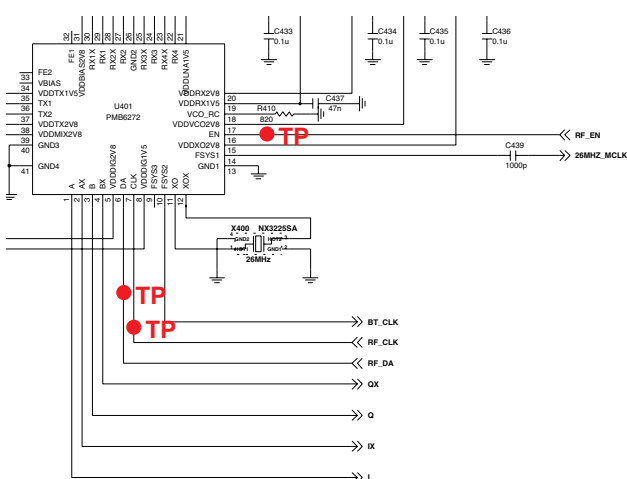
Figure 6. Transceiver Circuit   Figure 7. PLL Control Waveform
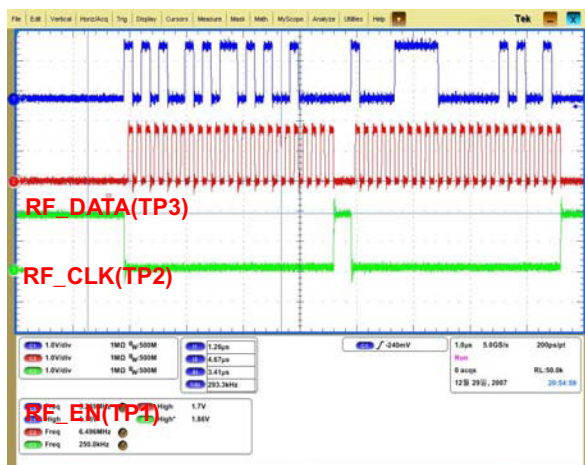
- 90 -

4.13.3 Checking Mobile SW & FEM

Mobile SW & FEM Circuit Diagram

	VC1 (FE1)	VC2 (FE2)
GSM850 / 900_TX	H	H
GSM 1800 / 1900_ TX	L	H
GSM850 / 900_RX	H	L
GSM 1800 / 1900_ RX	L	L
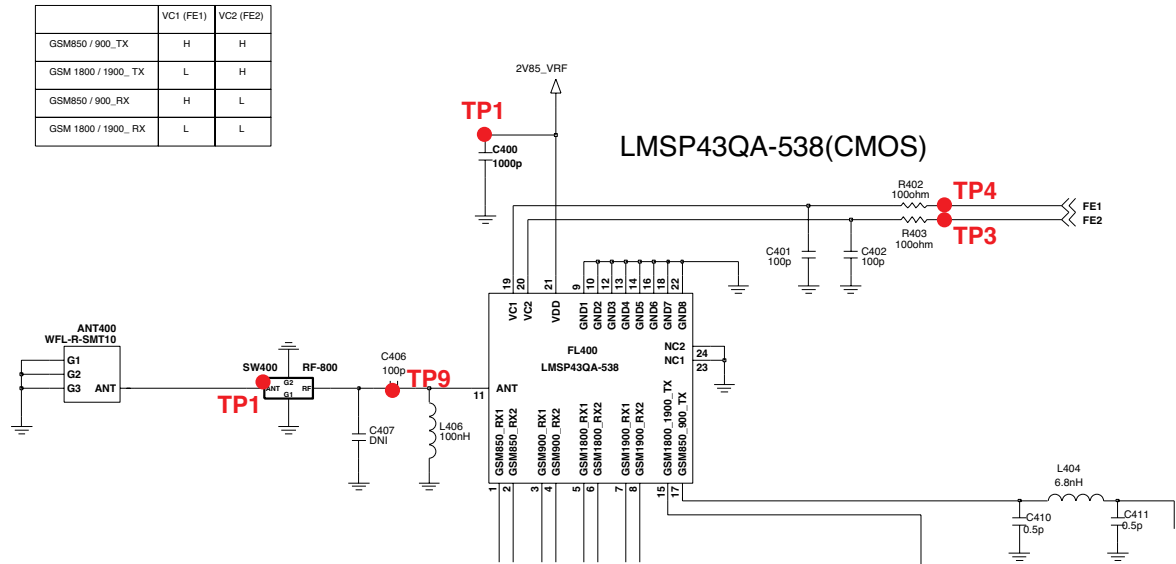
Figure 8. Mobile SW & FEM Circuit

Checking Points
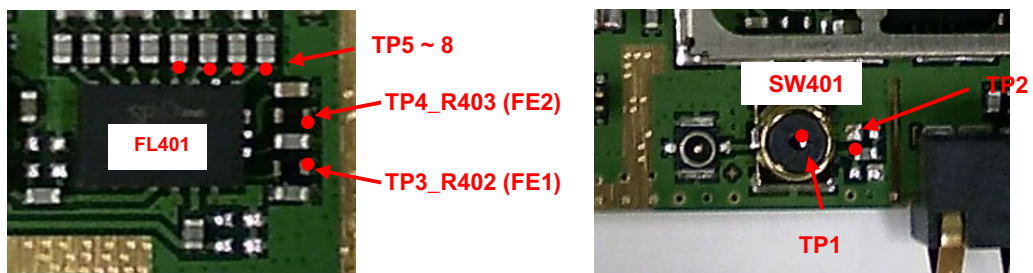
Figure 9. Mobile SW & FEM

	EGSM/GSM850	DCS/PCS
FE1	ON	OFF
FE2	OFF	OFF

Table 2. FEM RX Control Logic

```
┌─────────────────────────┐
│    Check TP1 of SW400    │
│  with RF Cable and TP2   │
│         of C406          │
└─────────────────────────┘
             │
             ▼
        ◇ TP1 Signal same ◇  ──No──▶  ┌──────────────────┐
        ◇    as TP2?      ◇           │ Replace Mobile SW │
                                       │      (SW400)      │
             │ Yes                     └──────────────────┘
             ▼
┌─────────────────────────┐
│ Check TP3, TP4 of FL400 ?│
└─────────────────────────┘
             │
             ▼
        ◇ Control Signal is ◇ ──────▶ ┌──────────────────┐
        ◇     OK ?         ◇          │   Replace U102   │
                                       └──────────────────┘
             │ Yes              No
             ▼
        ◇  TP5~8 Signal is  ◇ ──────▶ ┌──────────────────┐
        ◇     OK ?         ◇          │ Replace FEM (U401)│
                                       └──────────────────┘
             │ Yes              No
             ▼
┌─────────────────────────┐
│  Mobile SW & FEM is OK.  │
│      Check Antenna.      │
└─────────────────────────┘
```
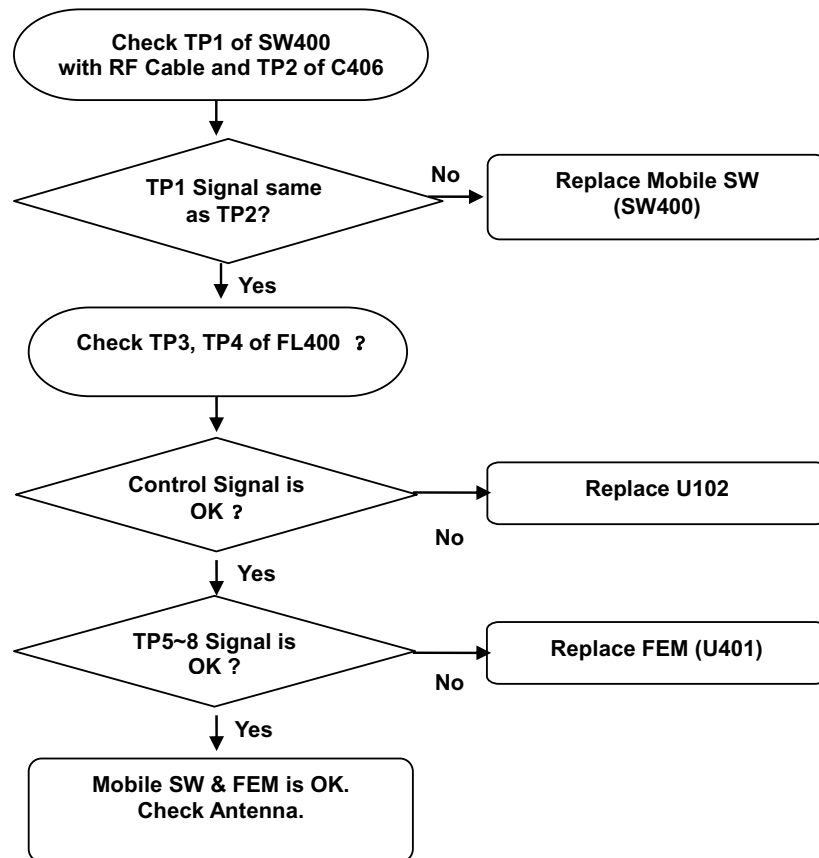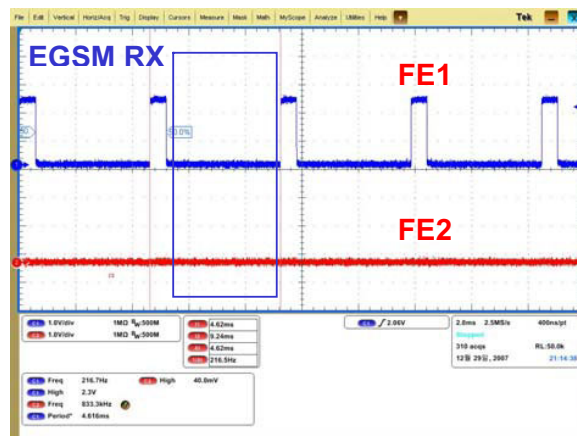
Figure 10 Mobile SW   **Figure 11 FEM Control Signals**

4.13.4. Checking RX I/Q Signals
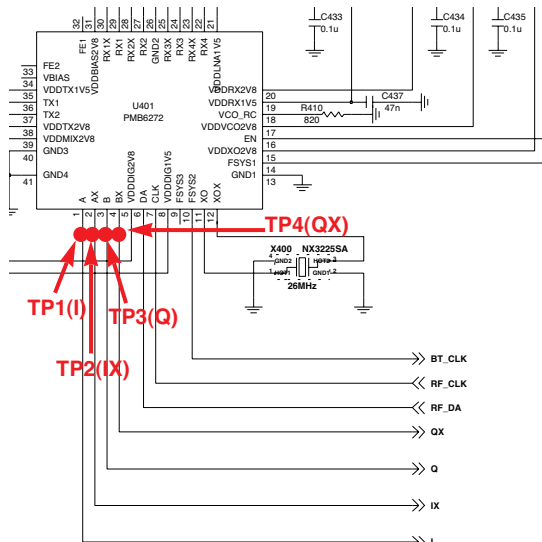
Figure 12. RX I/Q Circuit

Checking Flow

Check RX I/Q signals(TP1~TP4)

Signals are Normal?

No → Replace Transceiver PMB6272(U403)

Yes

RX Part is OK.
Check Base Band Circuit
or
Re-Download S/W and Cal
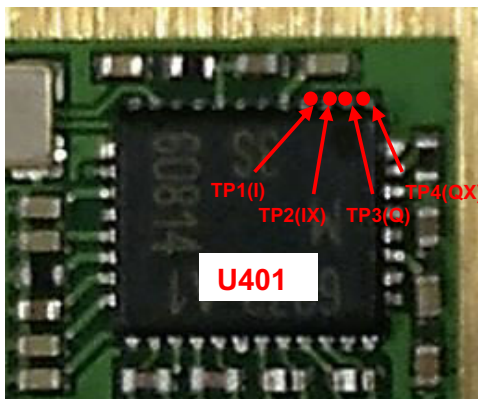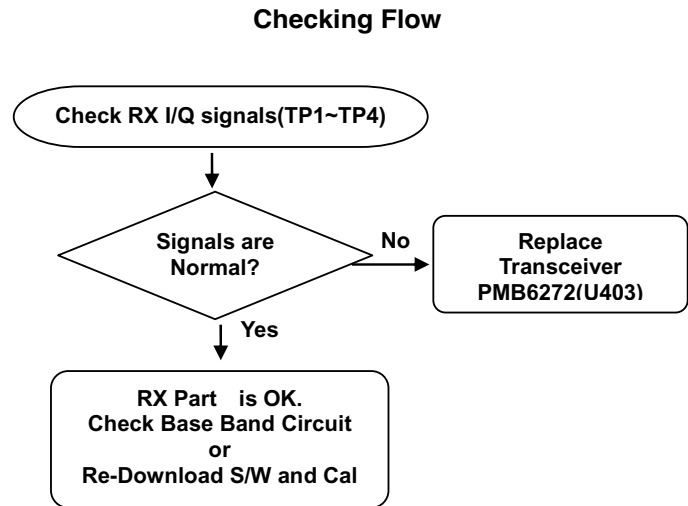
Checking Points

Figure 13. RX I/Q
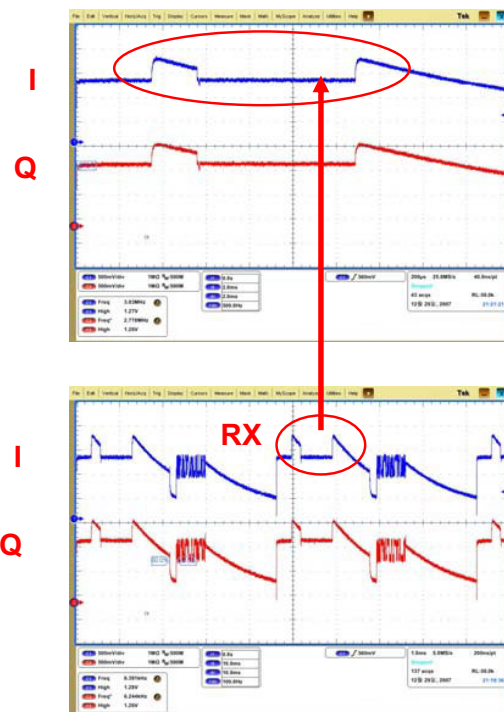
Figure 14. RX I/Q Waveform

4.14 Trouble shooting of Transmitter part.

Checking Flow

Setup Test Equipment
Cell Power : - 74dBm
EGSM   CH30
DCS CH699

Check point ① DCXO

Check point ② PLL Control

Check point ③ TX I/Q Signal

Check point ④ Transceiver

Check point ⑤ PAM Control

Check ⑥ FEM & Mobile SW

Re-Download S/W & RF CAL
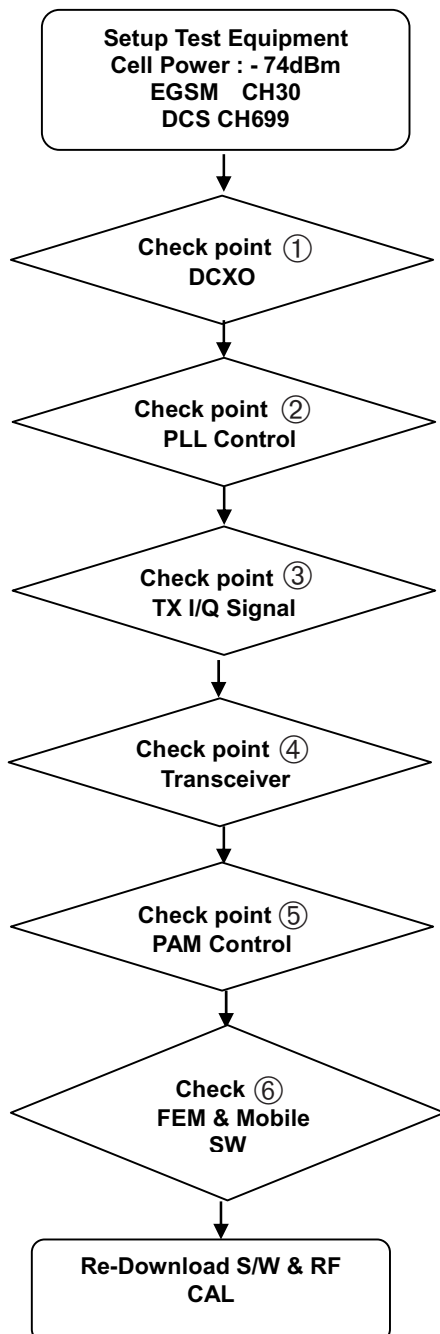
Checking Points

Figure 15. Main PCB
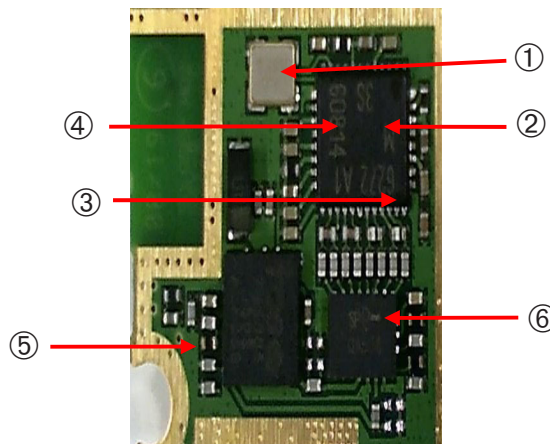
Figure 16. Main PCB
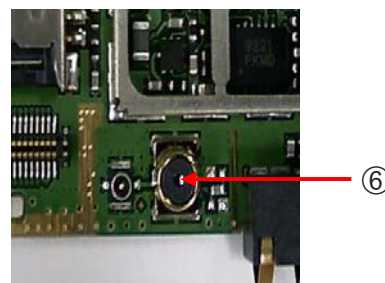
4.14.1. Checking VCTCXO Circuit

See RX Part "1. Checking DCXO Circuit"

4.14.2. Checking PLL Control Signal

See RX Part "2. Checking PLL Control Signal"

4.14.3. Checking TX I/Q Signals

Figure 17. TX I/Q

Checking Flow

Check TX I/Q Signals(TP1~TP4)

Signals are Normal ? — No → Replace Transceiver PMB6272(U401)

Yes

TX Part is OK.
Check Base Band Circuit
or
Re-Download S/W and Cal
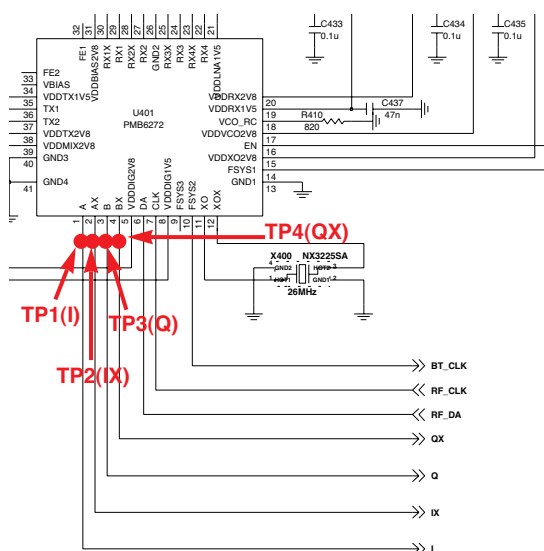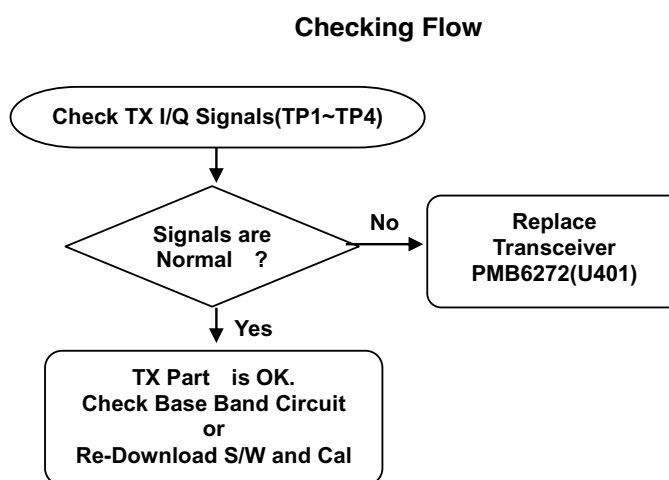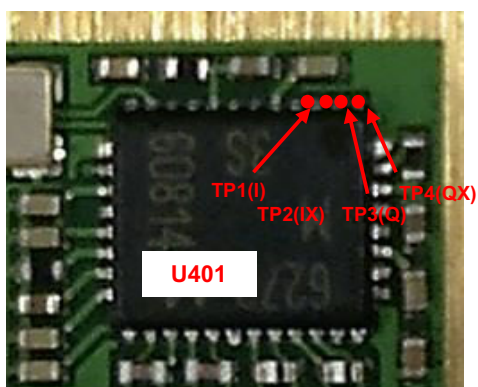
Checking Points

Figure 18. TX I/Q
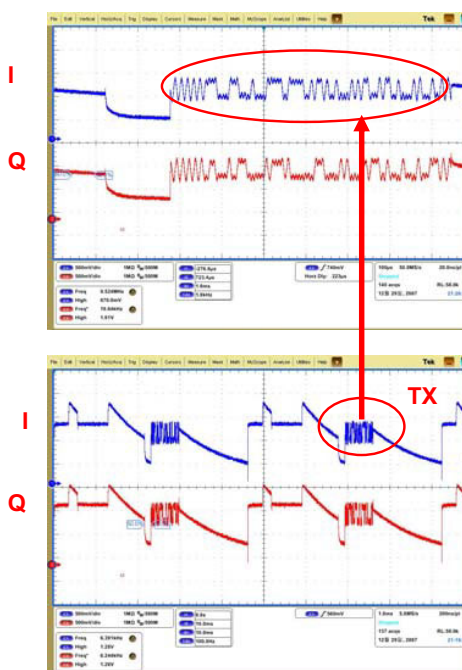
Figure 19. TX I/Q Waveform

4.14.4. Checking Transceiver Output Signals
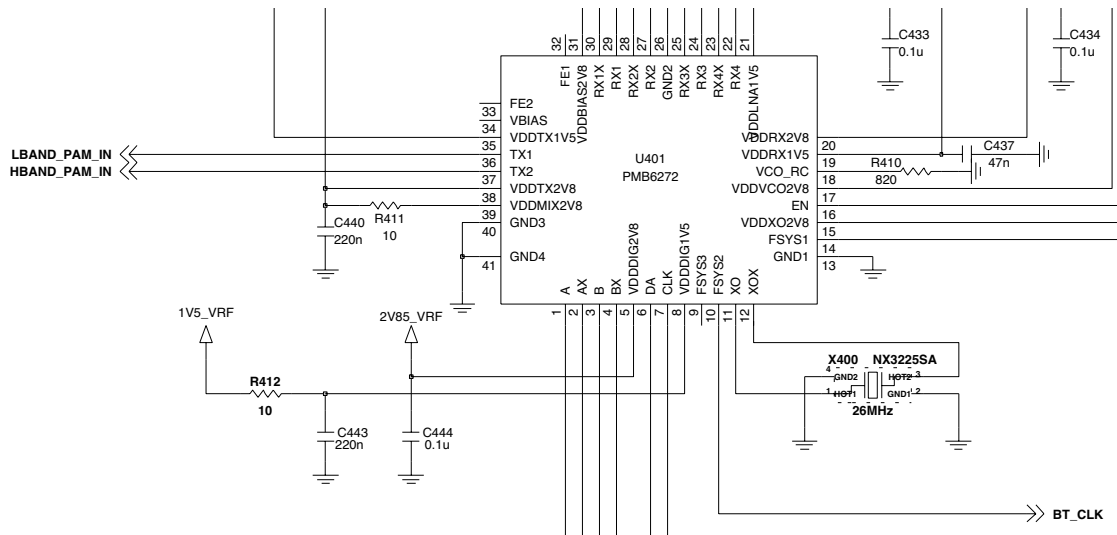
Figure 20. Transceiver Output Circuit

Checking Points

TP1(LBNAD_PAM_IN)

TP2(HBNAD_PAM_IN)
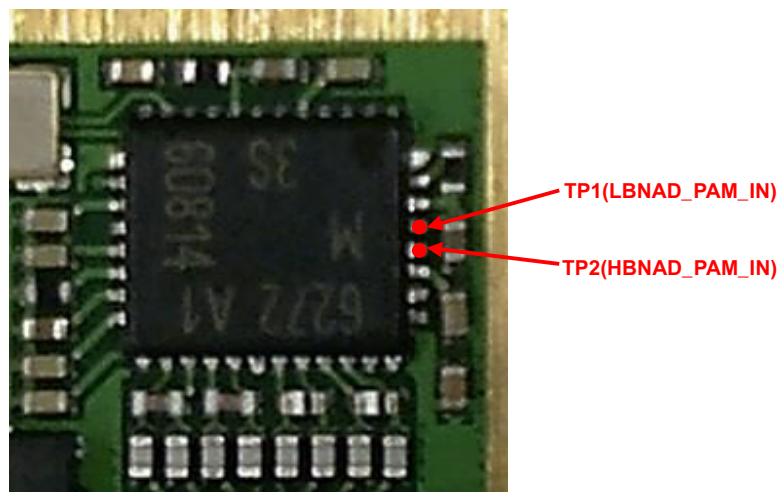
Figure 21. Transceiver Output

MODE	Transceiver Output
GMSK	Fixed
8PSK	Ramp Burst Control

Table 3. Transceiver Output Operation

LGE Internal Use Only

Checking Flow

```
          ┌─────────────────────┐
          │  Check Output Signal │
          │     (TP1, TP2)       │
          └──────────┬──────────┘
                     │
                     ▼
              ╱────────────╲                    ┌──────────────────┐
             ╱  Signals are  ╲      N           │     Replace       │
            ╱    Normal   ?    ╲───────────────▶│  PMB6272(U401)    │
             ╲                 ╱                └──────────────────┘
              ╲────────────╱
                     │ Yes
                     ▼
          ┌─────────────────────┐
          │  Transceiver  is OK. │
          │ See next page to check│
          │  PAM Control Circuit.│
          └─────────────────────┘
```

LBAND_PAM_IN (MODE: GMSK) : TP1   **LBAND_PAM_IN (MODE: 8PSK) : TP1**
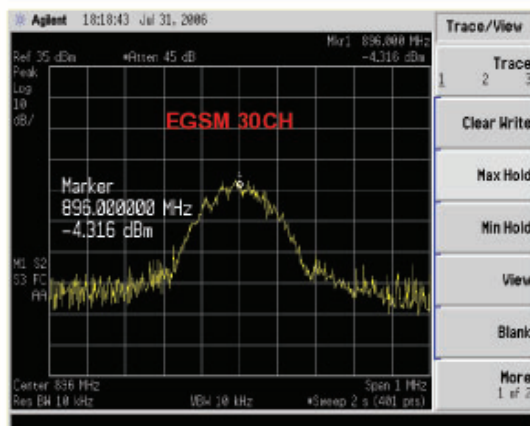
Figure 22. Transceiver Output (GMSK)
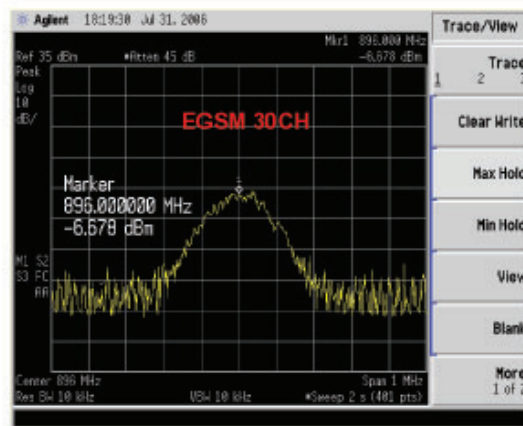
Figure 23. Transceiver Output (8PSK)

4.14.5. Checking PAM Control Signals
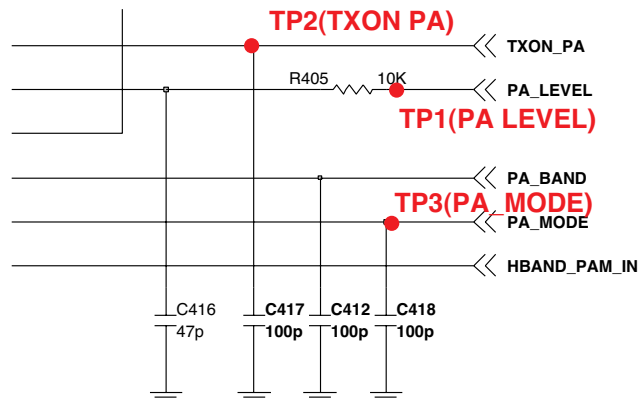
Figure 24. PAM Control Signals

Checking Points
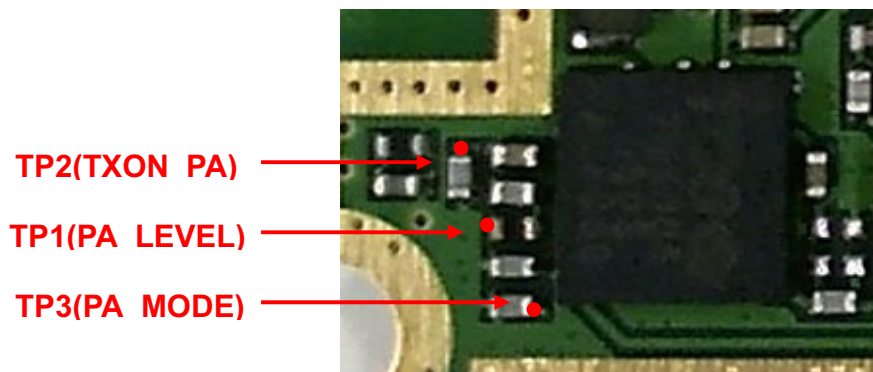
Figure 25. Transceiver Output

MODE	MODE	PA_LEVEL	TXON_PA
GMSK	LOW	Ramp Burst Control	HIGH
8PSK	HIGH	Control Amp bias	HIGH

Table 4. PAM Mode Operation

Checking Flow

Figure 26. GSMK Control Signal
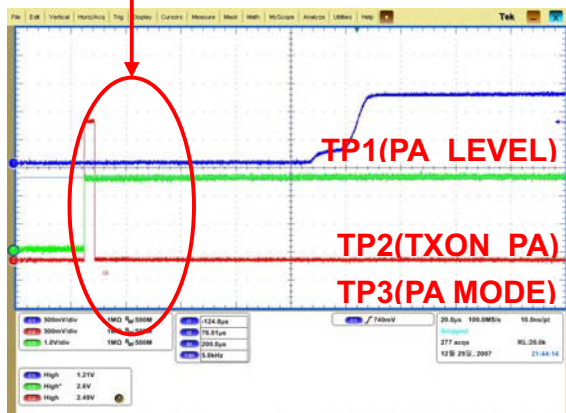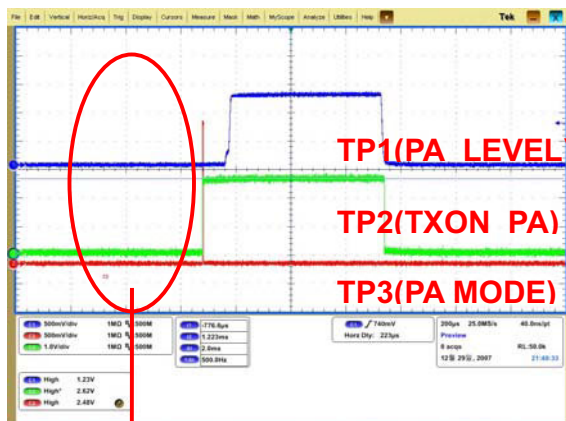
Figure 27. 8PSK Control Signal
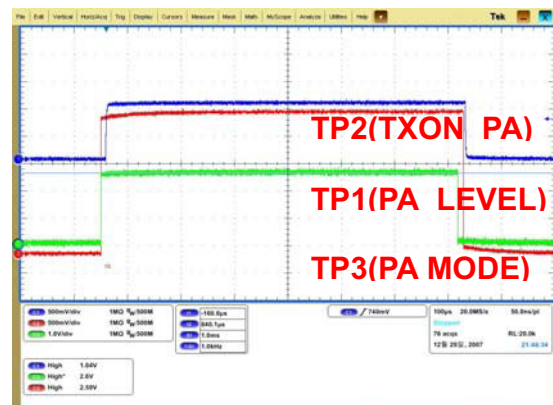
TP3(PA MODE) : C418

TP1(PA_LEVEL) : R405

TP2(TXON_PA) : C417

4.14.6. Checking FEM & Mobile SW

	VC1 (FE1)	VC2 (FE2)
GSM850 / 900_TX	H	H
GSM 1800 / 1900_ TX	L	H
GSM850 / 900_RX	H	L
GSM 1800 / 1900_ RX	L	L
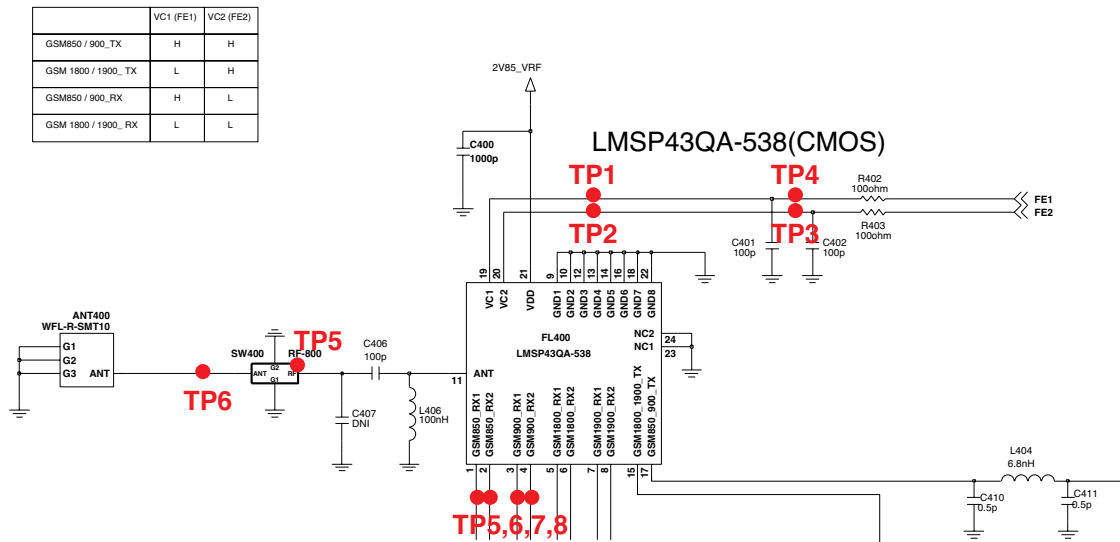
Figure 28. Mobile SW & FEM Circuit

Checking Points
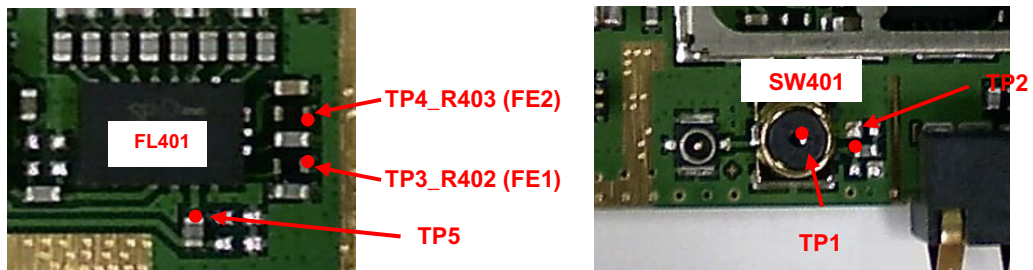
Figure 29 Mobile SW & FEM

	EGSM/GSM850	DCS/PCS
FE1	ON	OFF
FE2	ON	ON

Table 5. FEM TX Control Logic

☐4. TROUBLE SHOOTING

Checking Flow
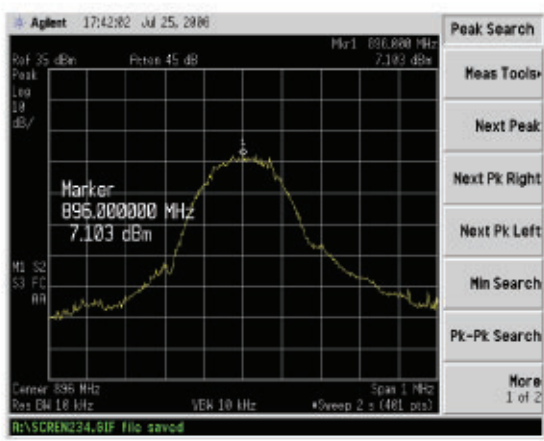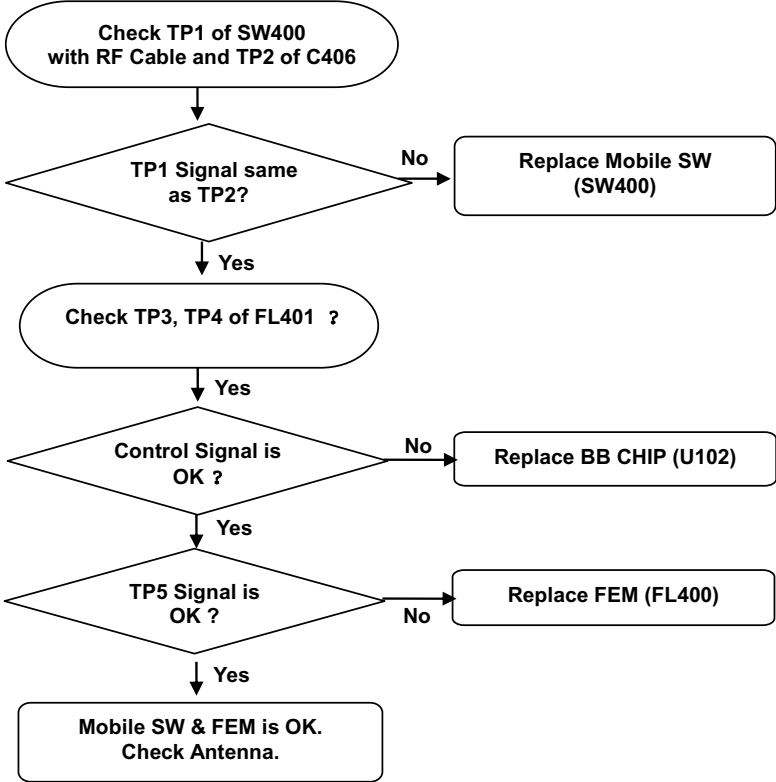
Figure 30 Mobile SW
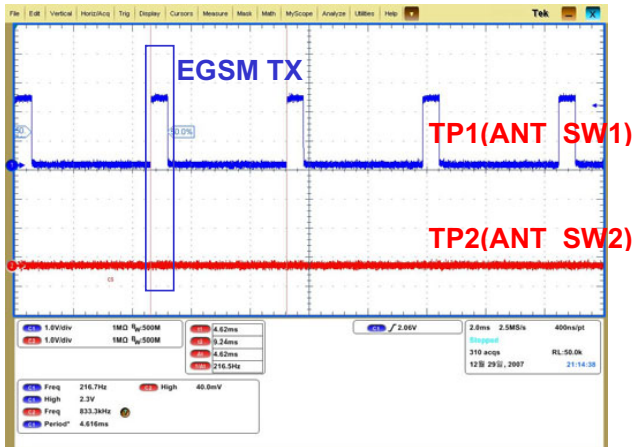
Figure 31 FEM Control Signals
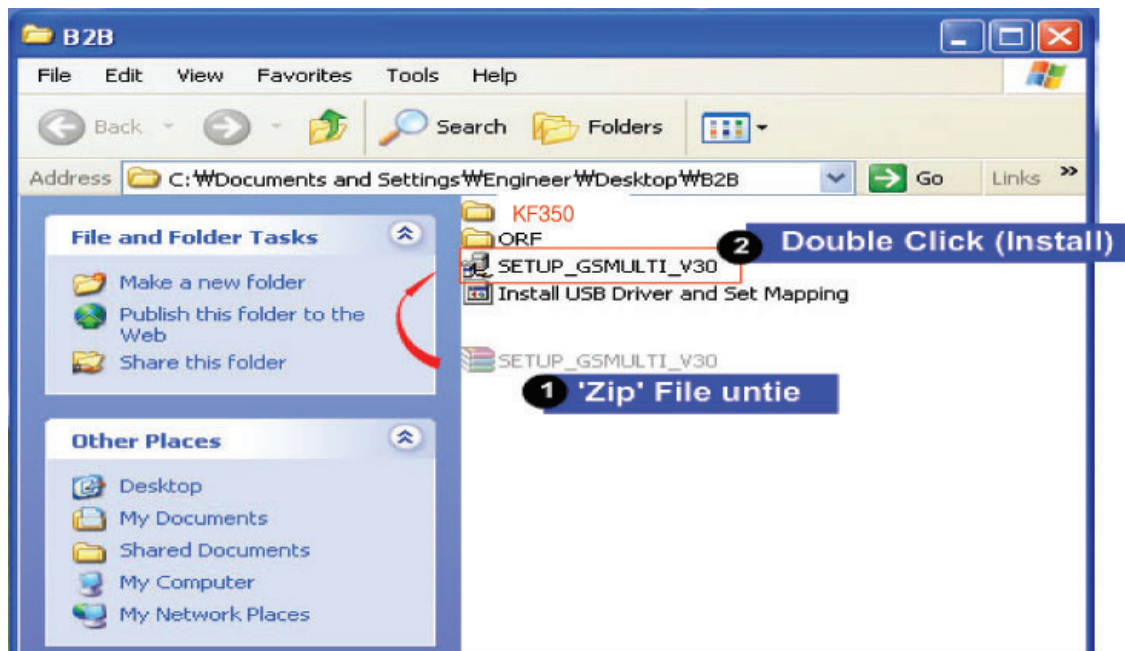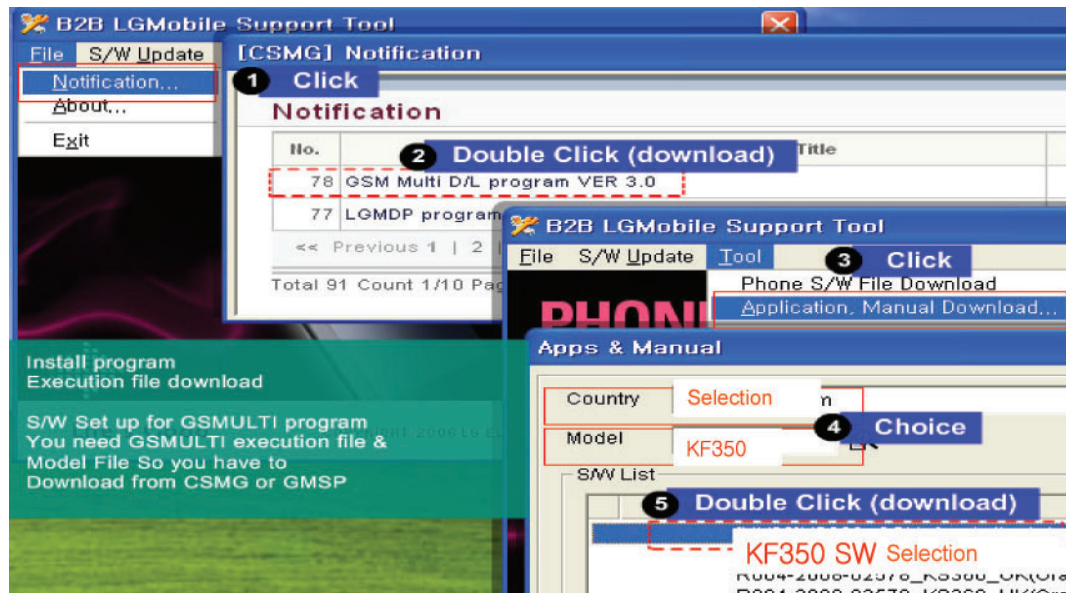
5. DOWNLOAD & S/W UPGRADE

5. DOWNLOAD & S/W UPGRADE

"Remove the Phone and I/O Cable"

5. DOWNLOAD & S/W UPGRADE

Double Click (Install)

'Choice'

Main Chip according to the model is chosen. KC550 chooses Infineon.

Click

MAPPING START

SAVE & EXIT   Cancel

"Phone and I/O Cable" Connect

5. DOWNLOAD & S/W UPGRADE

Configuration

Files

| DLL | C:\GSMULTI\Models\ KF350 | 80725.dll | ... |

| S/W | C:\GSMULTI\Models\ORFW\ KF350 S/W | 8-2008+6 | ... |
| | | | × |

Port Information

Choice ❶

○ UART   ● USB

※ If the USB icon is created when selecting DLL, the model supports the USB D/L function and if not created, this is the model that processes only UART (=serial).
I recommend you use High Speed Serial Devices.(USB or PCI)

Start COM [1]
End COM [16]

Child Frame Size

○ max. 8 ports
● max. 16 ports
○ max. 32 ports

Click ❷

[OK]   [Cancel]

LG-GSM Multi Download [Ver 3.0]

File(F)   S...   **Click**   ...ut(H)

❶ [START]   Model : [KF350]   SW Version : [KF350] 208-01-

USB 1

Wait phone connecting

---

5. DOWNLOAD & S/W UPGRADE

6. BLOCK DIAGRAM
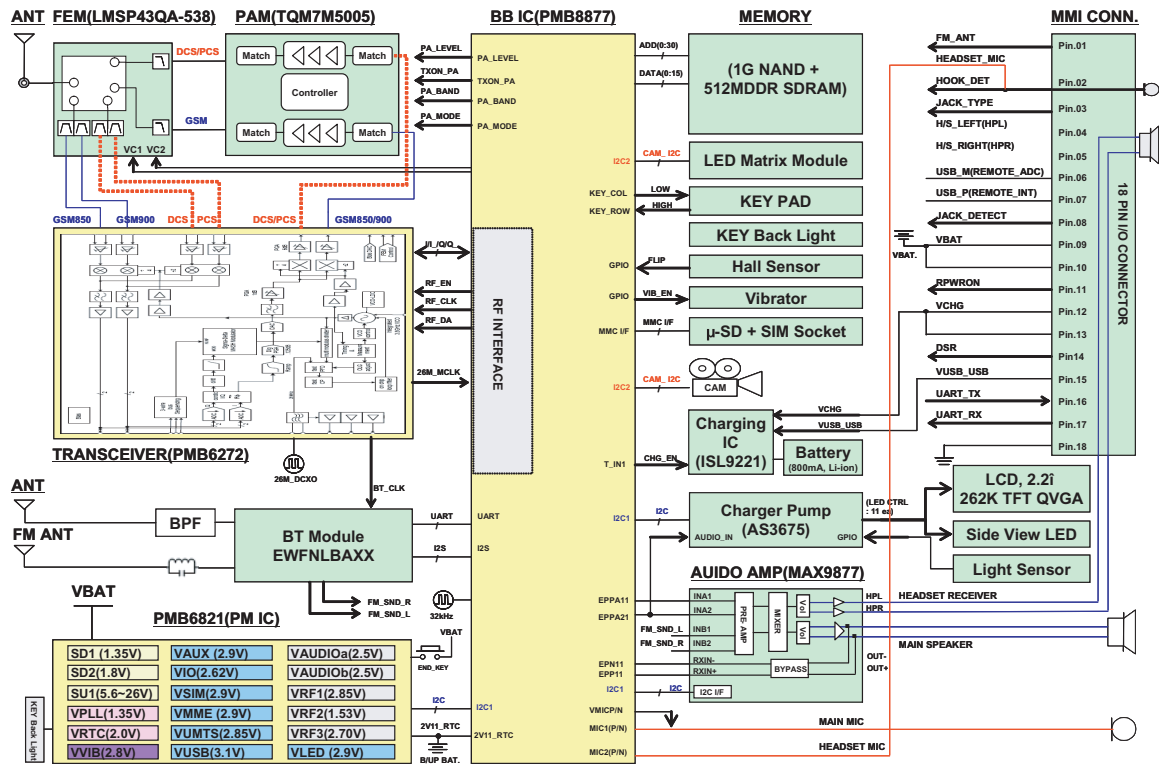
Figure 1 KF350 Functional block diagram

7. CIRCUIT DIAGRAM

BASE BAND PROCESSOR

1G NAND(Large Block x16bit) +512M DDR SDRAM

U102
PMB8877

U101
K5E1H12ACM-D075

ON BOARD ARM9 JTAG & ETM INTERFACE

Boot Mode

Large Block : R113 -> NA, R110 -> 1K
Small Block : R113 -> 10K, R110 -> NA

UART

CAL&AUTO POINT

7. CIRCUIT DIAGRAM

PMIC

AUDIO AMP SUB SYSTEM & SIGNAL DISTRIBUTOR

Remote Power On

END KEY

Battery Connector & Current Monitor

EXTERNAL RESET

Charging IC

7. CIRCUIT DIAGRAM

MAIN TO KEY CONNECTOR

MAIN TO LCD CONNECTOR

SIM & MMC Connetor

7. CIRCUIT DIAGRAM

LMSP43QA-538(CMOS)

TQM7M5005(5x5)

BLUETOOTH_FM_MODULE(TAIYO YUDEN)

7. CIRCUIT DIAGRAM

SUB TO MAIN CONNECTOR

SUB TO LED MODULE CONNECTOR

SUB TO CAMERA CONNECTOR

SUB TO SIDEVIEW CONNECTOR

LCD CONNECTOR

CHARGE PUMP

VIBRATOR

HITACH -> LOW, SHARP -> HIGH   LCD_ID

27pin IF_MODE : 8bit -> HIGH

7. CIRCUIT DIAGRAM

7. CIRCUIT DIAGRAM

SUB TO SIDEVIEW CONNECTOR

VBAT 2V11_RTC 2V9_VFM

CN100

MLED

LED1
LED2
LED3
LED4
LED5
LED6

VIB
PHOTO_ADC_IN

SPK_RCV_P
SPK_RCV_N

G804J-20P-H10-E3000

MOTOR

VBAT

VIB101

C100   1u   VIB

SPEAKER

SPK_RCV_P
SPK_RCV_N

CN101

C103   C102
DNI   DNI

BACK UP BATTERY

2V11_RTC

4.7K
R100

BAT100
NBL414H-F9J

WINDOW LED

MLED

LD100 LD101 LD102 LD103 LD104 LD105

LED1   LED2   LED3   LED4   LED5   LED6

PHOTO SENSOR

2V9_VFM

U100   APDS-9005-020

VCC   OUT

NC1   NC4

NC2   NC3

C101
DNI

PHOTO_ADC_IN

7. CIRCUIT DIAGRAM

MAIN FPCB_MAIN SIDE

CN100

GB042-60P-H10-E3000

MAIN FPCB_SUB SIDE

CN101

GB042-60P-H10-E3000

8.BGA PIN MAP

BASEBAND (U102, PMB8877)

	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA
19	CORNER_A	I2S1_WA0	I2C2_SCL	I2S1_CLK1	I2S2_TX		I2S2_CLK0		SPOU_RQ_IN1		VDDP_SIM		MICN1	MICP1	EPP1	EPPA1	EFREF	EPPA2	VDDA_VBR	M_2	CORNER_AA
18	TDO	TDI	AFC		I2S1_RX	I2S2_RX	SPOU_RQ_IN2			CC_CLK		MICN2	VDDA_VBT	EPW1	EPP1	EPPA1		EPPA2	M_0	M_3	M_5
17	I2C1_SDA	RF_CLK	VDDP_DVSC2	RF_STRB	I2S1_TX	VDDP_DVGA	I2S2_WA1	SPOU_RQ_OUT0	VSSP_DIG	CC_RST		MICP2	VSSA_VBT	EPW1	VSSA_VBR	VDDA_VBR	VSSA_VBR	M_1			M_3
16	VDDP_DVGC1	MON1	TDK		I2S1_CLK0	RTCK	USIF2_RTS_N	CC_IO		PAOUT1			BB_Q	AGND	VREFN	VREFP	VDDA_D	VMICN			FSCK
15	T_OUT3	T_IN0	TMS		RF_DATA	I2C3_SDA	I2S2_CLK1	SWIF_TXRX	GUARD	BB_QX	VSSA_BB	BB_IX	BB_I	VDDA_BB		VMICP			VSSA_M	TRACEPKT[9]	OSC32K
14	MMC01_DAT0[3]	T_OUT1	I2C1_SCL		TRIG_IN	USIF2_CTS_N							VSSA_D	VSSA_BG					RESET_N	RTC_OUT	VSS_RTC
13	VDDP_MMC	T_OUTR	T_IN1		T_OUT0	TRST_N							VDDA_BG	VDDA_M					VDD_PLL	PM_INT	VDD_RTC
12	MMC01_CLK	T_OUT10	T_OUT8			T_OUT6				VSS_MAIN	VDD_MAIN	PAOUT1				VSS_PLL	F28M		CLKOUT0	TRACEPKT[11]	TRACEPKT[10]
11	CIF_D1	MMC01_DAT7[3]			T_OUT4	T_OUT2			VDD_MAIN	VSS_MAIN	VDD_MAIN	VSS_MAIN				FCDP_RBN	TRACECLK		FWP	TRACEPKT[6]	TRACEPKT[5]
10	CIF_RESET	VSSP_DIG			MMC01_CMD	MMC01_DAT0[3]			VDD_MAIN	VSS_MAIN	VDD_MAIN	VSS_MAIN	VDD_MAIN			PIPESTAT[1]	MEM_OVE		VSSP_MEM_ETM	TRACEPKT[1]	VDDP_MEM_ETM
9	CIF_D2	CIF_D5	MMC01_DAT7[1]		CIF_HSYNC	CIF_D0			VDD_MAIN	VSS_MAIN	VDD_MAIN	VSS_MAIN	VDD_MAIN			MEM_A[11]	MEM_A[14]		MEM_A[16]	PIPESTAT[3]	TRACEPKT[4]
8	CIF_D6	CIF_D4	CIF_D3		CIF_D7	CIF_RESET1				VSS_MAIN	VDD_MAIN	VSS_MAIN				MEM_A[0]	MEM_A[3]		MEM_CAS_N	PIPESTAT[0]	TRACEPKT[0]
7	VSSP_DIG	CIF_PCLK	CIF_RESET2		CIF_D3	CIF_D0							MEM_A[6]	MEM_A[7]		MEM_A[6]	MEM_A[7]		MEM_A[12]	MEM_RAS_N	TRACESYNC
6	CIF_PD	CLKOUT2	CIF_D1		DSPOUT1	MMC02_CLK										MEM_CSA0_N	MEM_A[3]		MEM_A[10]	MEM_A[13]	VDDP_MEM
5	VDDP_DVGB	CIF_D2	CIF_C0		USIF1_RXD_MRS1	KP_OUT3	KP_IN3		KP_IN1		MEM_AD[3]		MEM_A[17]	MEM_A[24]	MEM_AD[2]	MEM_CSA3_N	MEM_BC0_N		MEM_A[4]	MEM_A[8]	MEM_A[8]
4	CIF_VSYNC	CIF_D7	CIF_HD		USIF3_SCLK	USIF1_CTS_N	KP_OUT0	DSPIN0					MEM_A[22]		MEM_AD[3]	MEM_A[28]	MEM_CSA1_N		MEM_A[1]	MEM_BC0_N	MEM_A[5]
3	CIF_D4	CIF_D8	CIF_WR		USIF3_RXD_MRS1	USIF1_TXD_MTSR	KP_OUT1	KP_IN2	MEM_AD[2]		MEM_AD[1]		MEM_CS1_N	MEM_WR_N		MEM_A[26]	MEM_CSA0_N	MEM_BC1_N	MEM_BFCLKIO1	MEM_BFCLKIO2	VDDP_MEM
2	CIF_D5	VDDP_DVG0			USIF1_TXD_MTSR	IRDA_TX	IRDA_RX	VSSP_DIG	KP_IN4		VDD_FUSE_FS	MEM_AD[0]	MEM_A[7]	MEM_A[6]	MEM_CS0_N	MEM_A[23]	MEM_A[16]	VSSP_MEM_ETM	MEM_A[18]	MEM_SDCLKIO	MEM_BC0_N
1	CORNER_A	CIF_RD	CIF_CS1	CIF_VD	USIF1_RTS_N	KP_OUT2	KP_IN0	VDDP_DVGE	KP_IN6	DSPIN1	MEM_RD_N		MEM_AD[5]			MEM_A[21]	VSSP_MEM_ETM	MEM_A[16]	VSSP_MEM_ETM	VDDP_MEM	CORNER_AA
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	Y	AA

: NC pin

MEMORY (U101, K5E1H12ACM-D075)
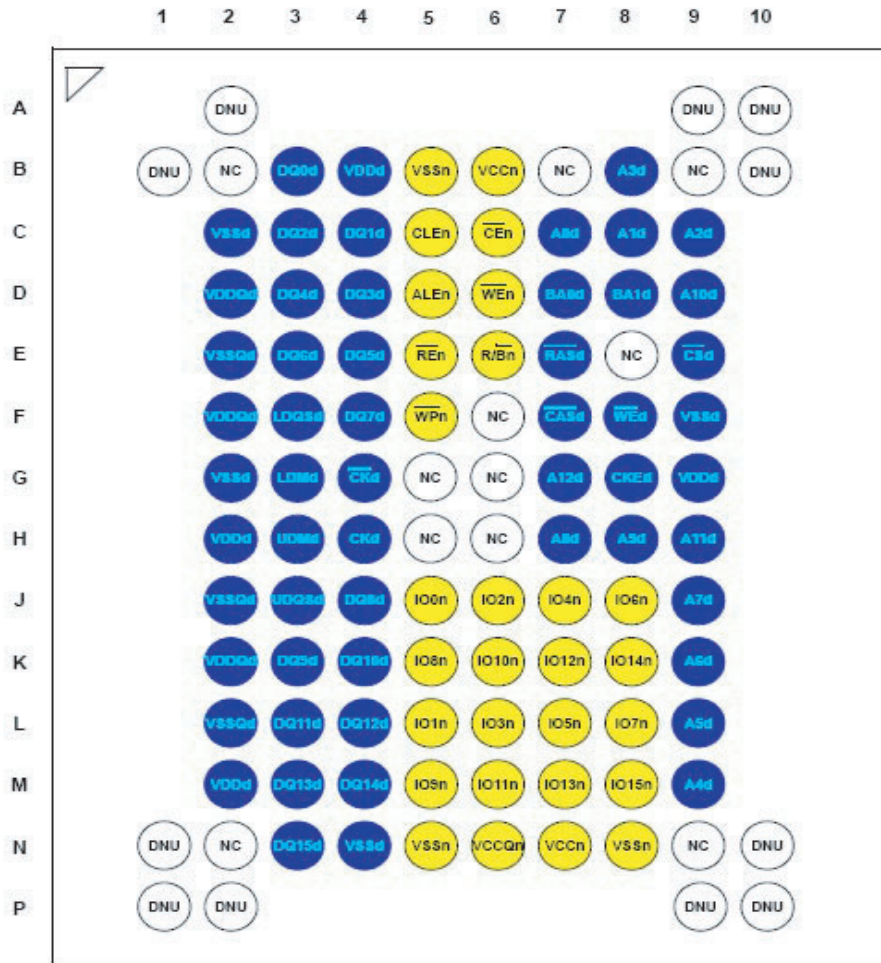
107 FBGA: Top View (Ball Down)
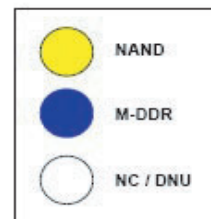
PMIC (U202, PMB6821)

	1	2	3	4	5	6	7	8	9	10	11	
A	PUMS1	DAT_VP		VUSB	VREFEX_M				FLASH_SINK	VPLL	VIO	**A**
B	RCV	SE0_VM	AC_Plus	PUMS2	VDDUSB			RREF	VDDPLLIO	TXONPA	PUMS3	**B**
C	D_Plus	VPIN	AC_Minus	OE_N		VSS	VSS_MONO	VREF	FLASH_ON	VDDMME	VMME	**C**
D		D_Minus	VMIN	VSS	VSS	VSS	VSS	VSS	VSS_VREF	VDDRF2	VRF2	**D**
E	SLEEP2_N	SLEEP1_N	RESET_N	VSS	VSS	VSS	VSS	VSS	VSS	VRF3	VDDRF13AFC	**E**
F	VDDAUDIOA	VAUDIOA	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VRF1	VVIB	**F**
G	VAUDIOB	VDDAUDIOB	VSS	VSS	VSS	VSS	VSS	VSS	VSS	VSIM	VDDSIMVIB	**G**
H	VDDAUX	VAUX		VSS_SD2	VSS	VSS	VSS	VSS_SD1	VDDUMTS	VRTC	VAFC	**H**
J		SU1_GND			RESOURCE_CTRL	VSS	I2C_CLK		VDD_REF	SD1_FB	VUMTS	**J**
K	VDDSD2	SD2_FB	POWER_ON	ON_OFF1	I2C_INT	I2C_DAT		CH_SOURCE	VDDCHARGE	SENSE_IN2	VDDSD1	**K**
L	VSD2	SD2_FBL	WDOG	ON_OFF2			CH_CNTRL	CHARGE_UC	SENSE_IN1	SD1_FBL	VSD1	**L**
	1	2	3	4	5	6	7	8	9	10	11	

■ : NC pin

AUDIO SUB SYSTEM (U201, MAX9877)

	1	2	3	4	5
A	HPR	HPL	Vss	C1N	C1P
B	VDD	BIAS	SDA	RXIN+	OUT+
C	INB2	INB1	SCL	PGND	PVDD
D	INA2	INA1	GND	RXIN-	OUT-
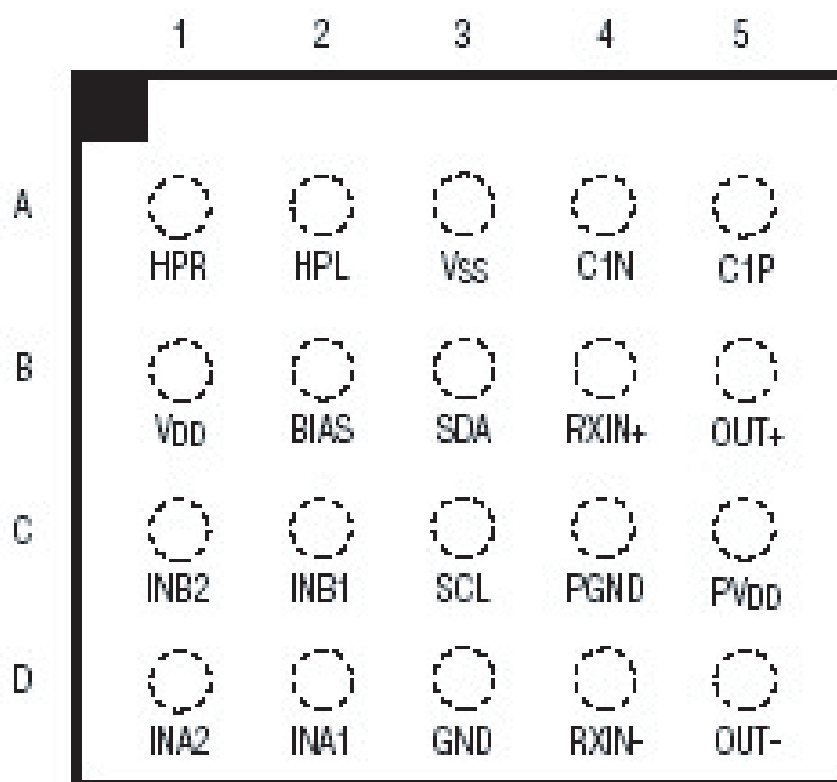
CHARGE PUMP (U101, AS3675)

Bmp	Name	Type	Description
A1	GPIO	AIO	General Purpose Input Output
A2	VANA / GPI	AIO	LDO Output / General Purpose Input
A3	C2_N	AIO	Charge Pump flying capacitor; connect a ceramic capacitor of 500nF to this pin.
A4	C1_P	AIO	Charge Pump flying capacitor; connect a ceramic capacitor of 500nF to this pin.
A5	CP_OUT	AO	Output voltage of the Charge Pump; connect a ceramic capacitor of 1µF (±20%).
A6	DATA	DIO	Serial interface data input/output.
B1	AUDIO_IN	AI	Audio Input
B2	VSS_CP	GND	Ground Pad for Charge Pump
B3	C1_N	AIO	Charge Pump flying capacitor; connect a ceramic capacitor of 500nF to this pin.
B4	C2_P	AIO	Charge Pump flying capacitor; connect a ceramic capacitor of 500nF to this pin.
B5	DCDC_GATE	AO	DCDC gate driver.
B6	CLK	DI	Clock input for serial interface.
C1	CURR41	AI	Analog current sink input
C2	RGB3	AI	Analog current sink input
C3	VSS	GND	Ground pad
C4	VBAT	S	Supply pad. Connect to battery.
C5	CURR30	AI	Analog current sink input, intended for activity icon LED
C6	DCDC_SNS	AI	Sense input of shunt resistor for Step Up DC/DC Converter.
D1	CURR43	AI	Analog current sink input
D2	RGB1	AI	Analog current sink input
D3	CURR33	AI	Analog current sink input, intended for activity icon LED
D4	CURR31	AI	Analog current sink input, intended for activity icon LED
D5	CURR2	AI_HV	Analog current sink input (intended for Keyboard backlight)
D6	DCDC_FB	AI	DCDC feedback. Connect to resistor string.
E1	CURR42	AI	Analog current sink input
E2	RGB2	AI	Analog current sink input
E3	CURR32	AI	Analog current sink input, intended for activity icon LED
E4	CURR6	AI_HV	Analog current sink input (intended for Keyboard backlight)
E5	CURR1	AI_HV	Analog current sink input (intended for Keyboard backlight)
E6	V2_5	AO3	Output voltage of the Low-Power LDO; always connect a ceramic capacitor of 1µF (±20%) or 2.2µF (+100%/-50%). Do not load this pin during device startup.

9. PCB LAYOUT

U201 Audio Sub System
No Sound Speaker,
Headset

M1 BT Module
No BT Connection

U401 PMB6272
GSM Rx Sensitivity &
Tx Power
No Service

FL400 FEM
GSM Rx Sensitivity &
Tx Power
No Service

U400 PAM
GSM Tx Power
No Service

U101 Memory
No Booting

U101 Memory
No Booting

U102 PMB8877(BB chip)
No Power On
No Display
No Service

KF350-MAIN-SPFY0179201-1.0-TOP

9. PCB LAYOUT

CN302
F-LCD connector
No sound(spk)
No Dot matrix
No camera
No moter
No display

S301
SIM&MMC Connector
No SIM Card & SD Card detect

SW400 Antenna switch
No Network

CN301
KEY FPCB Connector
No MIC
No numeric key

U202 PMIC
No Power On
No Service
No Charging

ANT401 BT Antenna
No BT Connection

U204 Charging IC
No Charging
No Booting
No Service

CN201 Battery Connector
No Power On
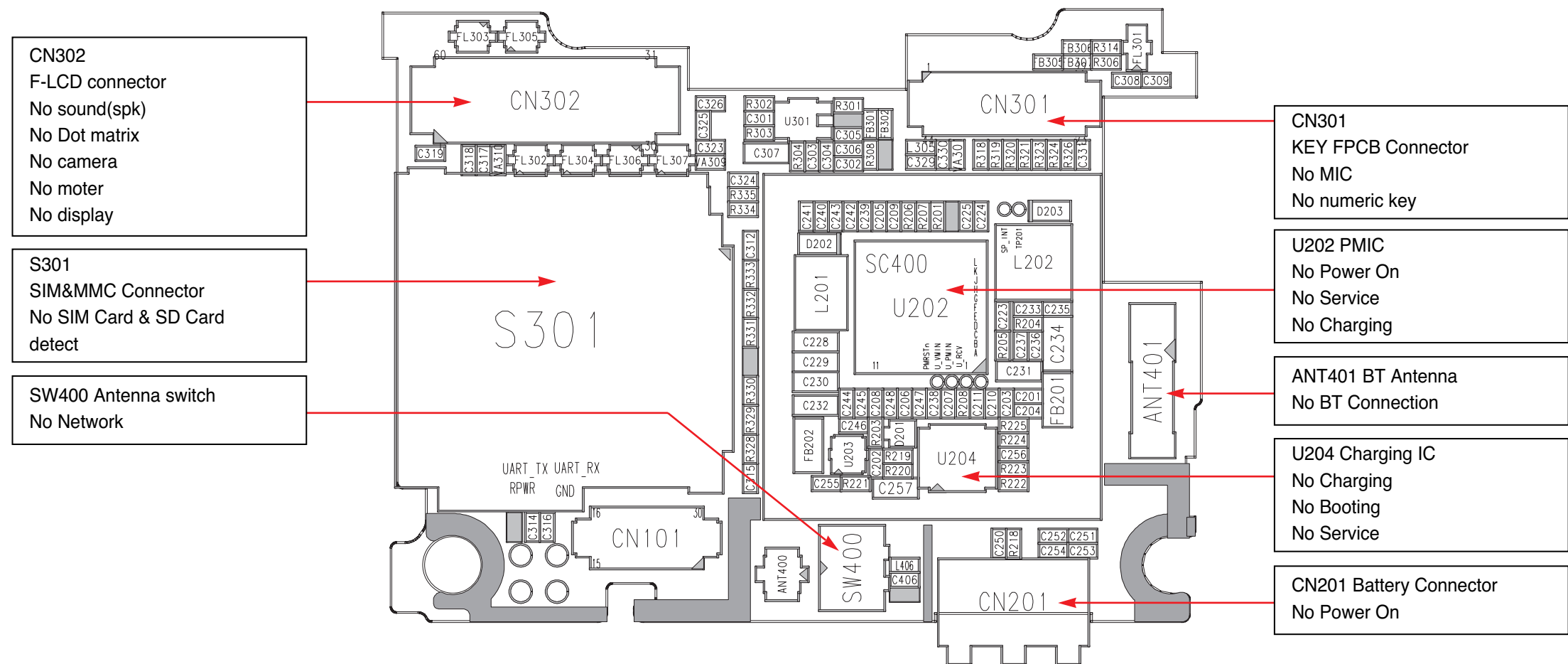
KF350-MAIN-SPFY0179201-1.0-BTM

9. PCB LAYOUT

CN103
Sub To Main Connector
No sound(spk)
No Dot matrix
No camera
No moter
No display

SW400 Antenna switch
No Network

U101 Charge Pump
No Dot matrix
No camera
No display
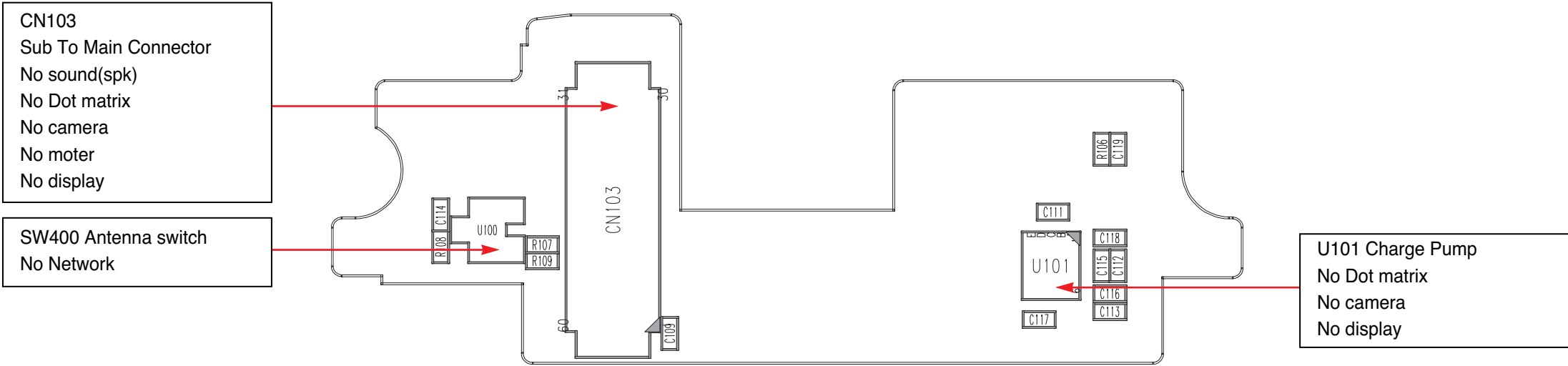
KF350-SUB-SPJY0055201-1.0-TOP

9. PCB LAYOUT

CN104 LCD Connector
No display

CN100
Dot Matrix Connector
No Dot Matrix

CN102 Camera Connector
No Camera

CN101
F-Folder connector
No sound(spk)
No Flash LED
No Vibrator

CN104

CN100

CN102

CN101

TP101
TP100

C108
C107
C106
C102

C101

C105 C104 C103

C100
C101
C102

KF350-SUB-SPJY0055201-1.0-BOT
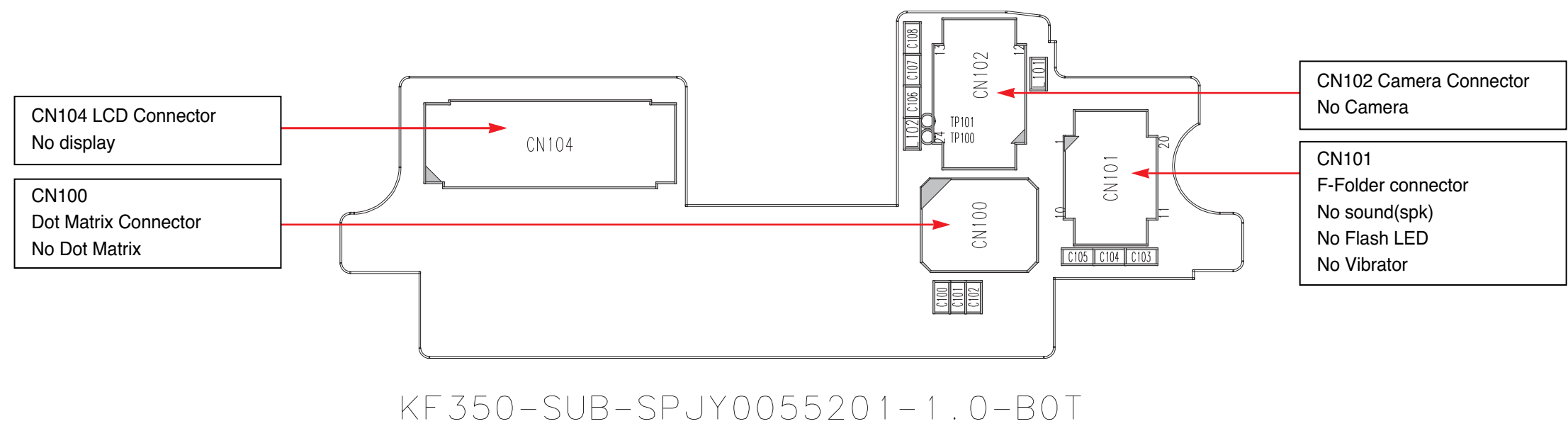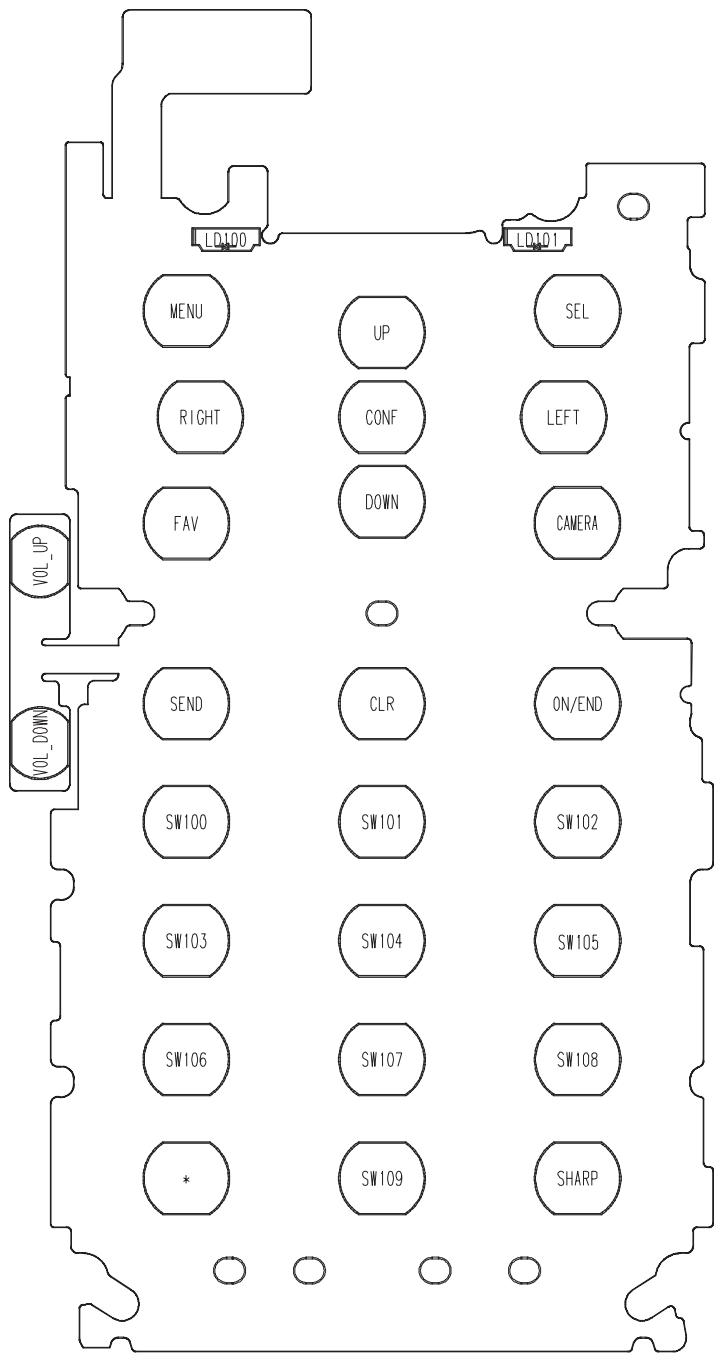
9. PCB LAYOUT

KF350-KEY-SPCY0144601-1.0

9. PCB LAYOUT

CN101
KEY FPCB Connector
No MIC
No numeric key

U100 Hall effect IC
No Folder on/off
detection

CN100 18pin connector
No charging, No sound
Headset, No USB

SW1100 Antenna switch
No Network

CN101

U100

CN100

SW110

ANT100

CND101

GND100

MIC100

KF350-KEY-SPCY0144601-1.0

9. PCB LAYOUT

LD105 LD103 LD101 LD104 LD100 LD102

VB101 Vibrator PAD
No Vibrator

VB101

KF350-F-FOLDER-1.0-TOP

9. PCB LAYOUT

CN100 F-Folder connector
No sound(spk)
No Flash LED
No Vibrator

CN100

CN101

CN101 Speaker PAD
No sound

BAT100 Backup Battery
RTC reset

BAT100

U100

U100 Photo Senser
No Photo Senser

KF350-F-FOLDER-1.0-BOT

9. PCB LAYOUT

CN101

31　　　　60

50　　　　1

KF350-F-LCD-1.0

9. PCB LAYOUT

CN100

KF350-F-LCD-1.0

9.PCB LAYOUT

Main PCB component placement
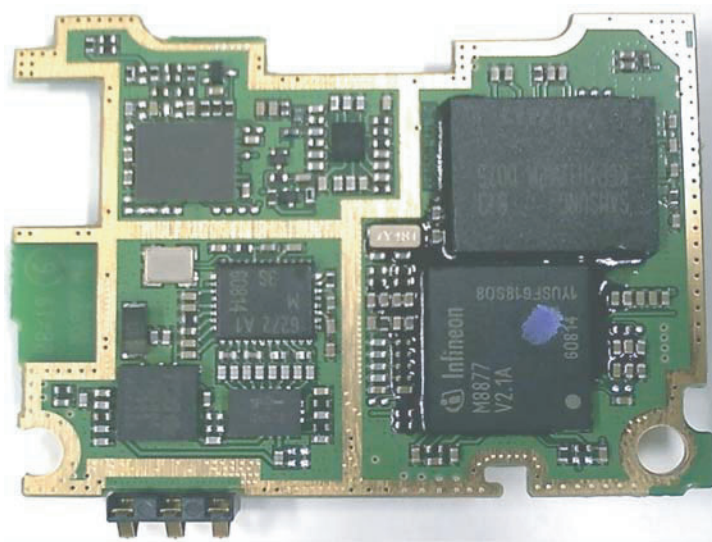
Main PCB Top
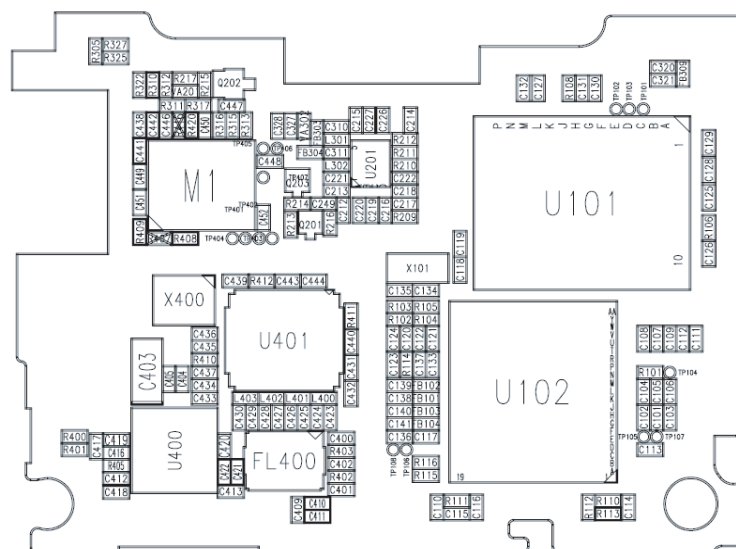
Main PCB Top placement
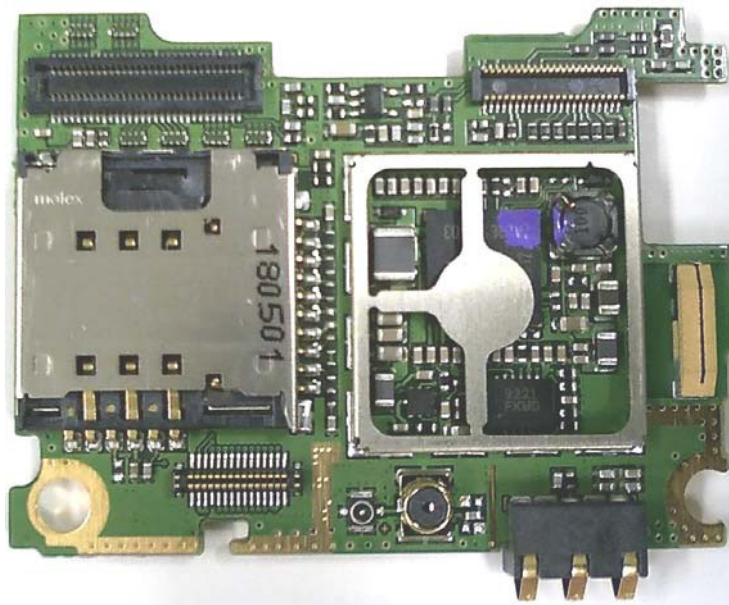
Main PCB bottom
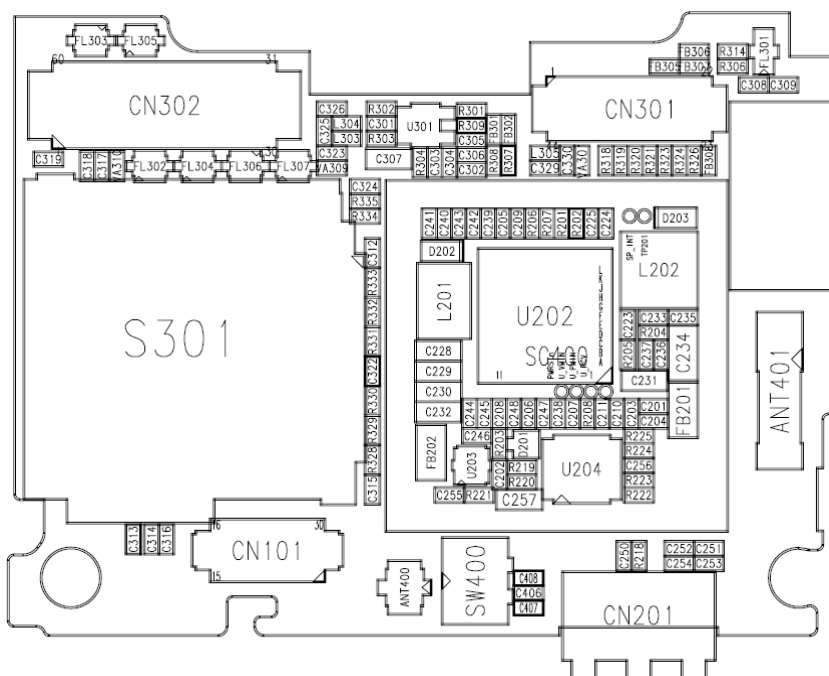
Main PCB bottom placement

Audio AMP

BT & FM Module

Memory

MAIN Charge pump

BBP

RF Block

Charging IC

Folder Conn.(LCD & Camera)

Key PCB Conn.

Power Inductor

PMIC

SIM & uSD Socket

BT Antenna

Vibrator Driver IC

Charging IC (OVP)

Mobile Switch

Battery Connector

9.PCB LAYOUT

Speaker

Vibrator

Backup Battery

SideView LED

SUB to LED Module Conn.

Sub to Main Conn.

Charge Pump

LED Matrix

Vibrator Driver

LED Control IC

Camera Conn.

Sideview Conn.

LCD Conn.

LED Module Conn.

10. RF CALIBRATION

10.1 Test Equipment Setup
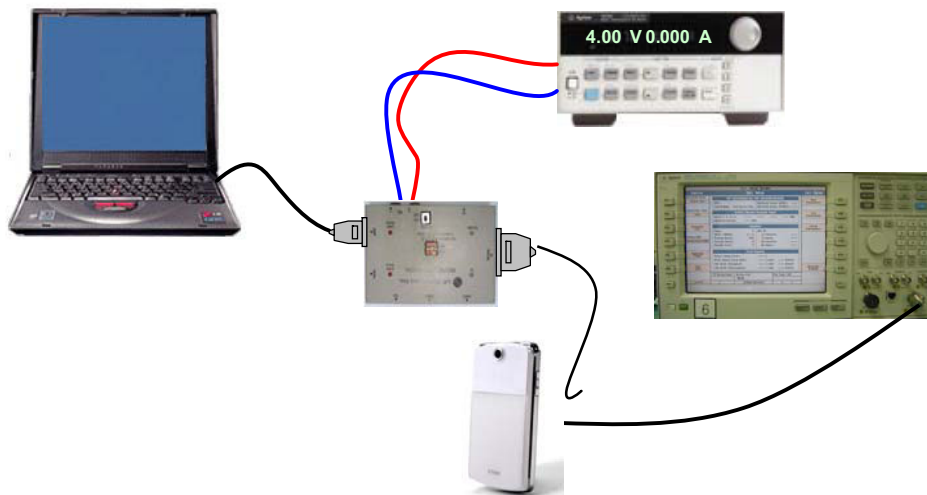
10.2 Calibration Step

10.2.1 Turn on the Phone.

10.2.2 Execute "HK_27.exe"
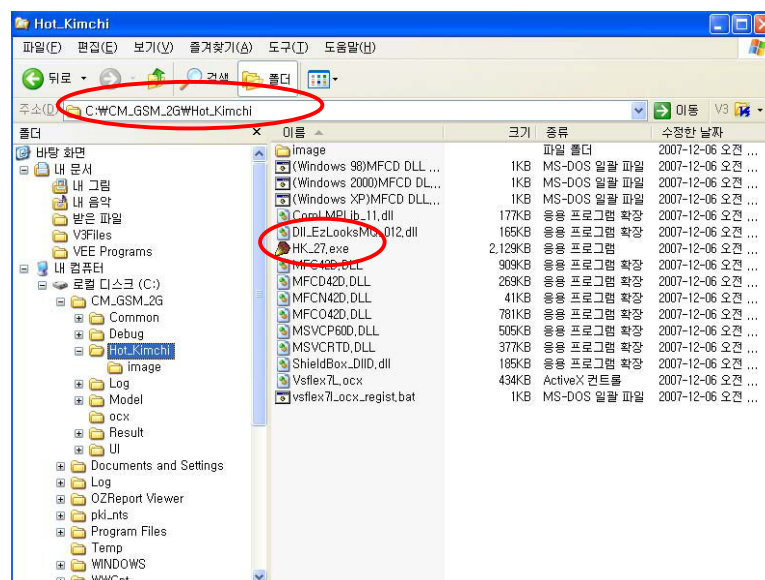
10. RF CALIBRATION

10.2.3 Click "SETTING" Menu
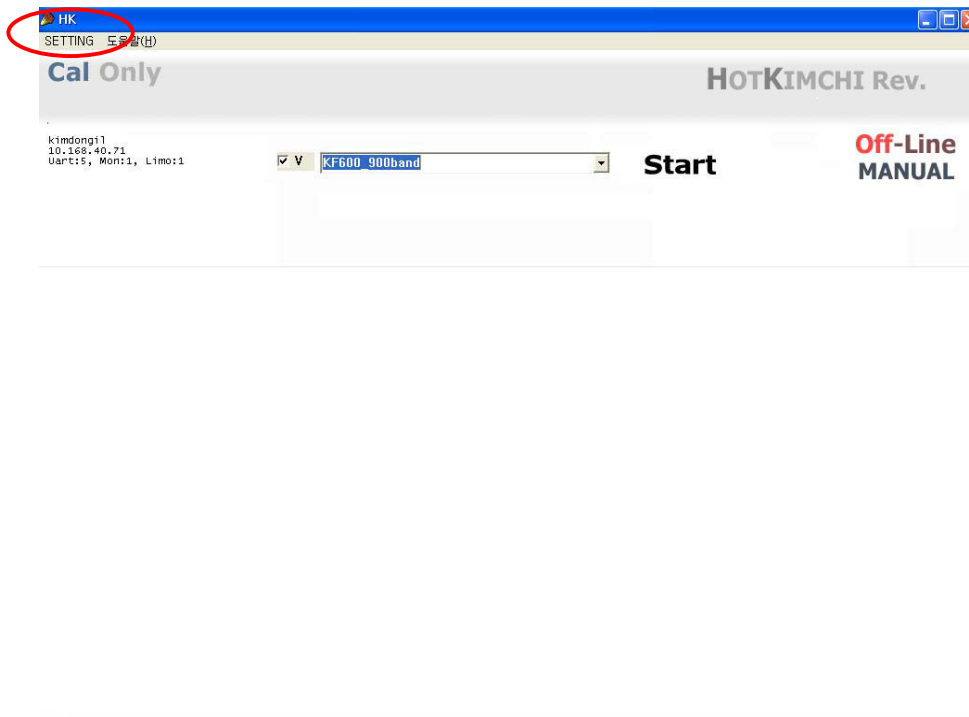
10.2.4 Setup "Ezlooks" menu such as the following figure
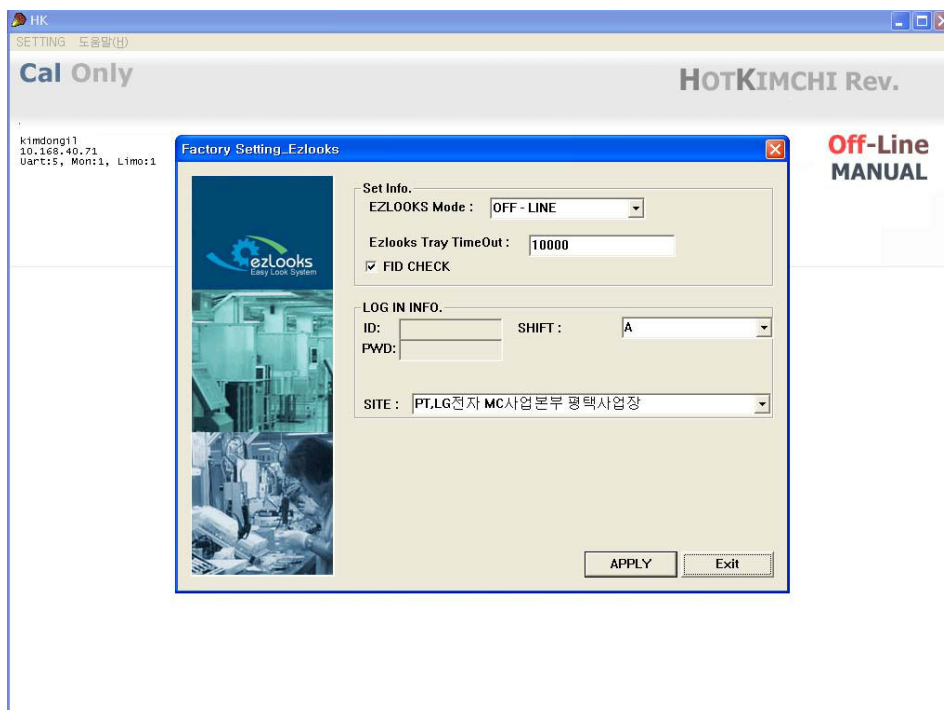
10.2.5 Setup "Line System" menu such as the following figure
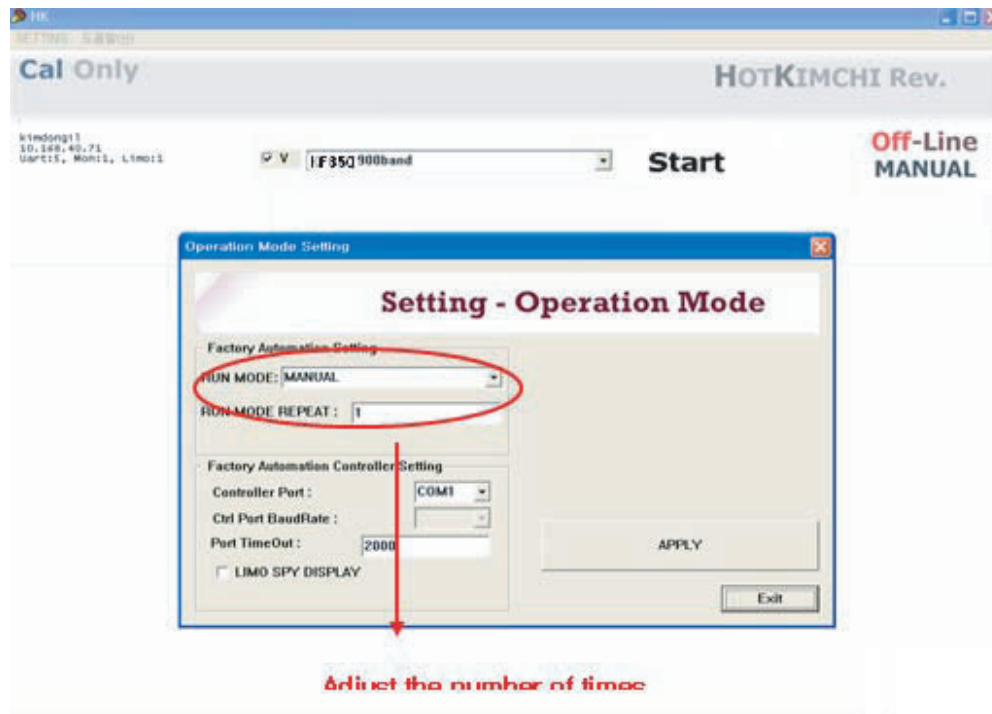
10.2.6 Setup Logic operation such as the following figure.
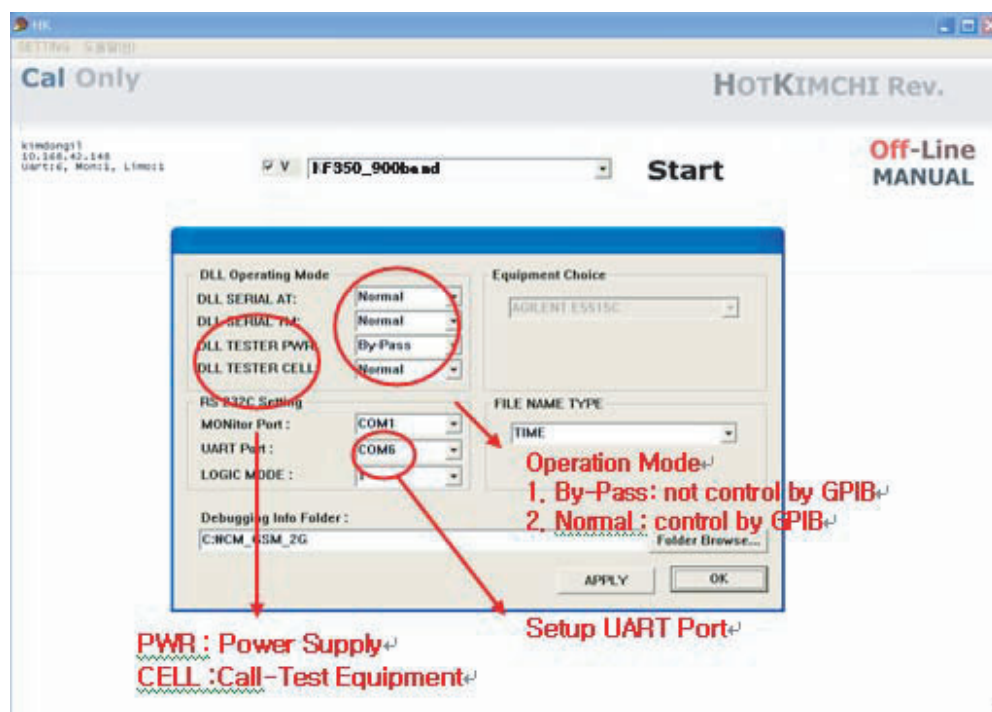
10. RF CALIBRATION

10.2.7 Select "MODEL".

10.2.8 Click "START" for RF calibration
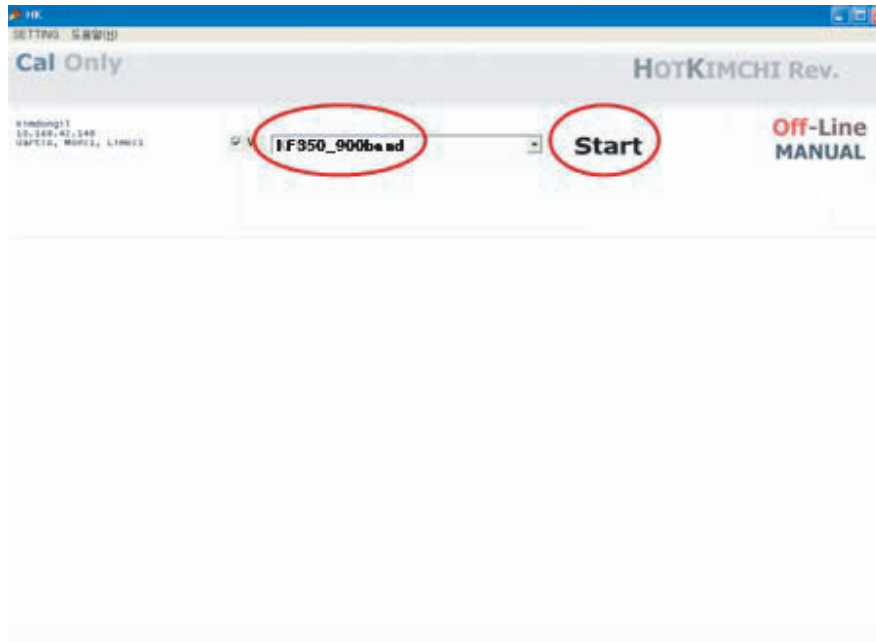
10.2.9 RF Calibration finishes
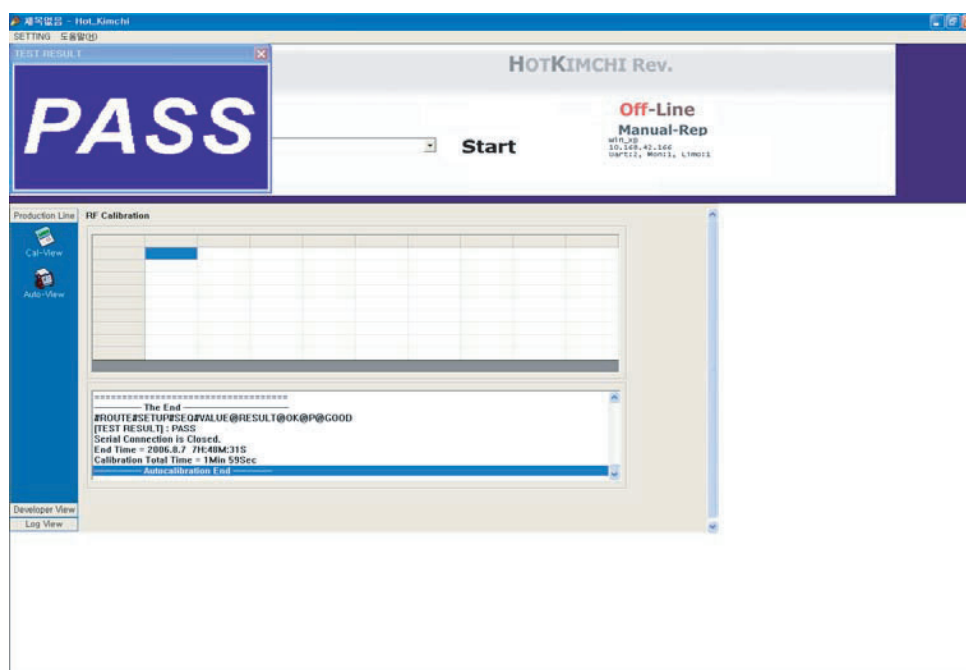
10.2.10 Calibration data will be saved to the following folder.
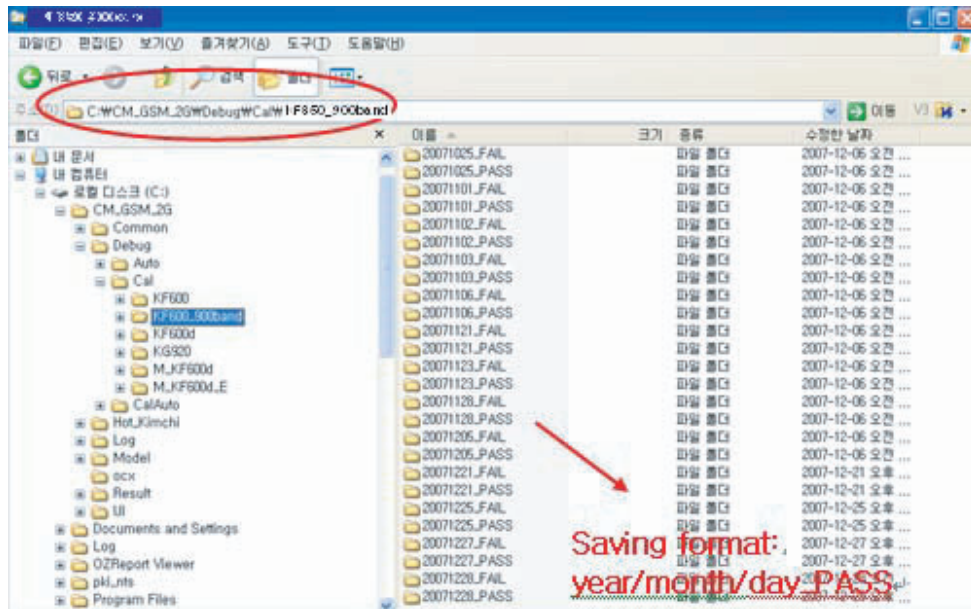
10. RF CALIBRATION

Notices:

1. The state of Phone is " test mode " during the CALIBRATION.

2. Calibration program automatically changes either "normal mode" or "ptest mode".

3. RF Calibration steps as follow:

   TX Channel compensation: EGSM->DCS->PCS->EDGE EGSM->EDGE DCS->EDGE PCS

   RX Channel compensation: EGSM->DCS->PCS

4. Phone Operation Mode
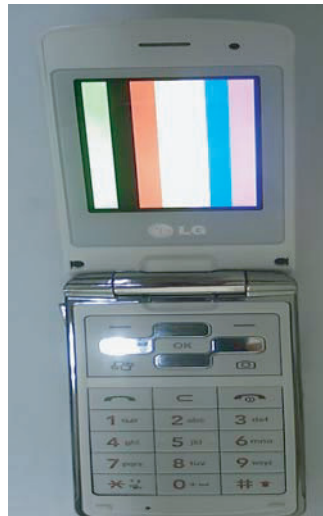
< Normal Mode >   **< ptest Mode >**

11. STAND-ALONE TEST

11.1 Test Program Setting

① Set COM Port.

② Check PC Baud rate.

③ Confirm EEPROM & Delta file prefix name.
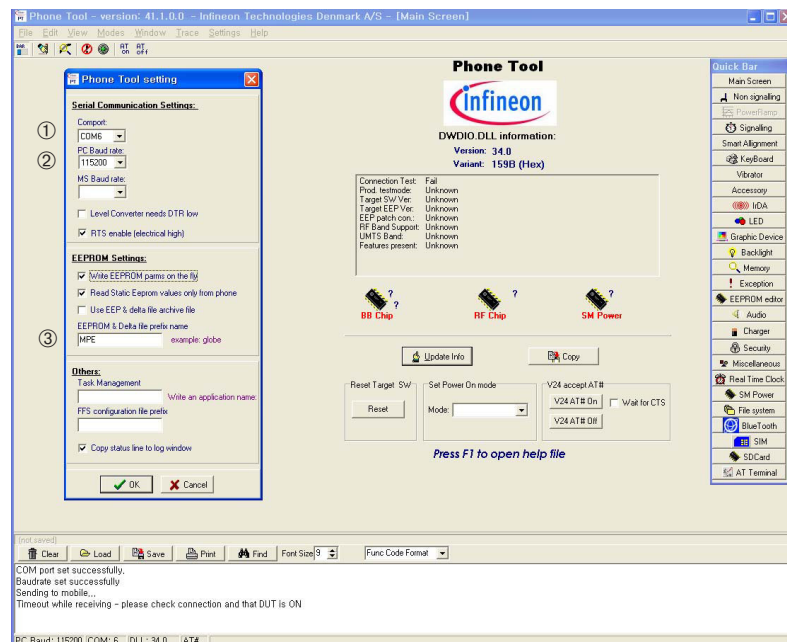
④ Click "Update Info" for communicating Phone and Test-Program.
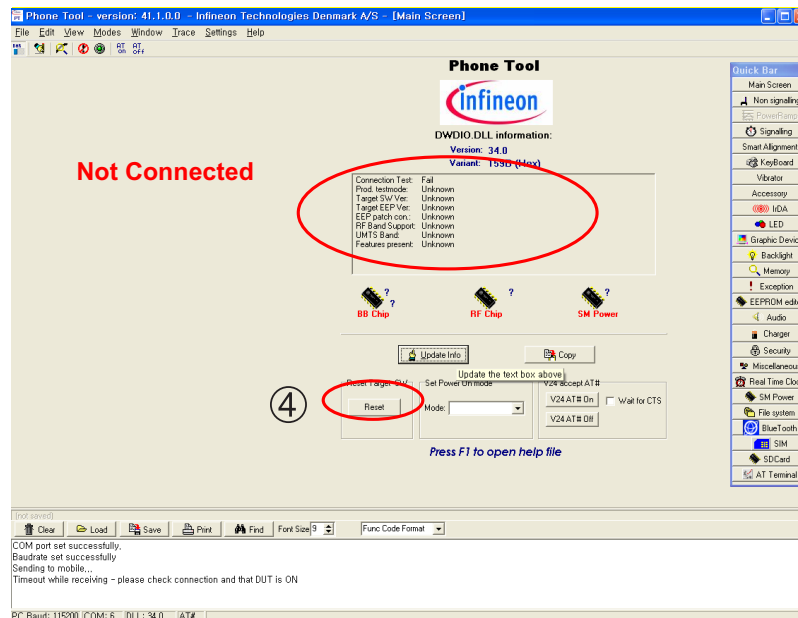
11. STAND-ALONE TEST
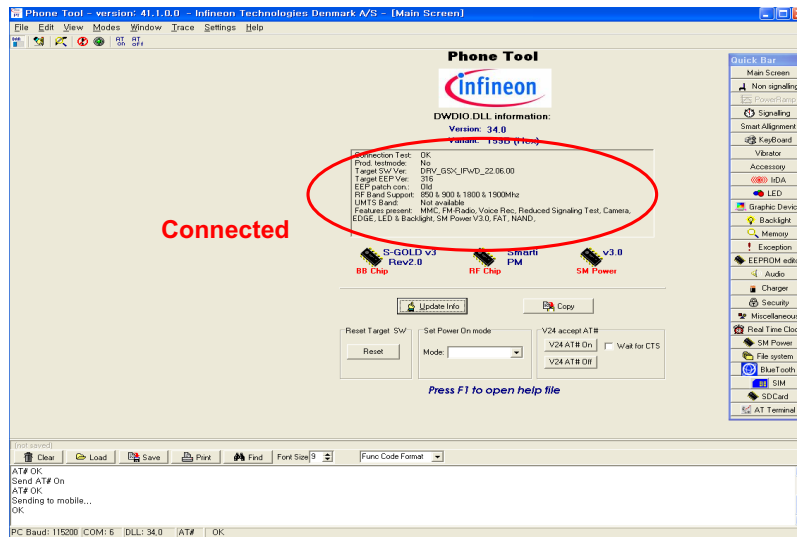
⑤ For the purpose of the Standalone Test, Change the Phone to "ptest mode" and then Click the "Reset" bar.

⑥ Select "Non signaling" in the Quick Bar menu. Then Standalone Test setup is finished.
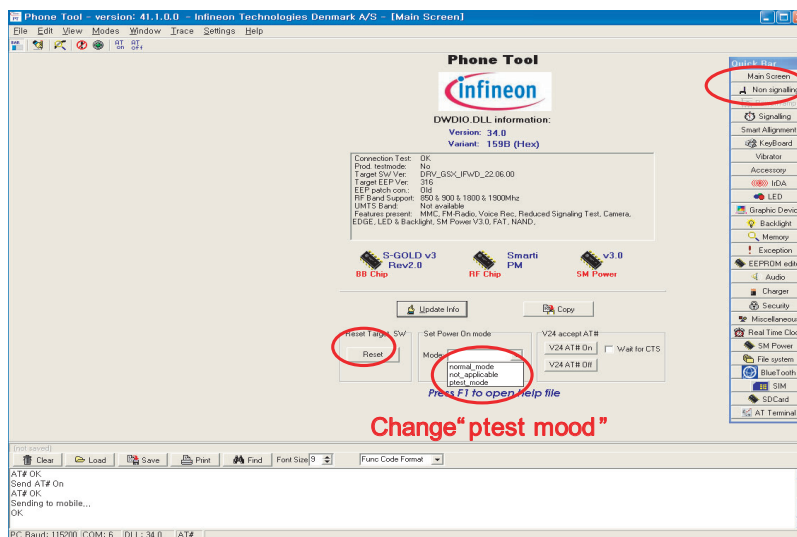
11.2 Tx Test

① Click "Non signaling mode" bar and then confirm "OK" text in the command line.
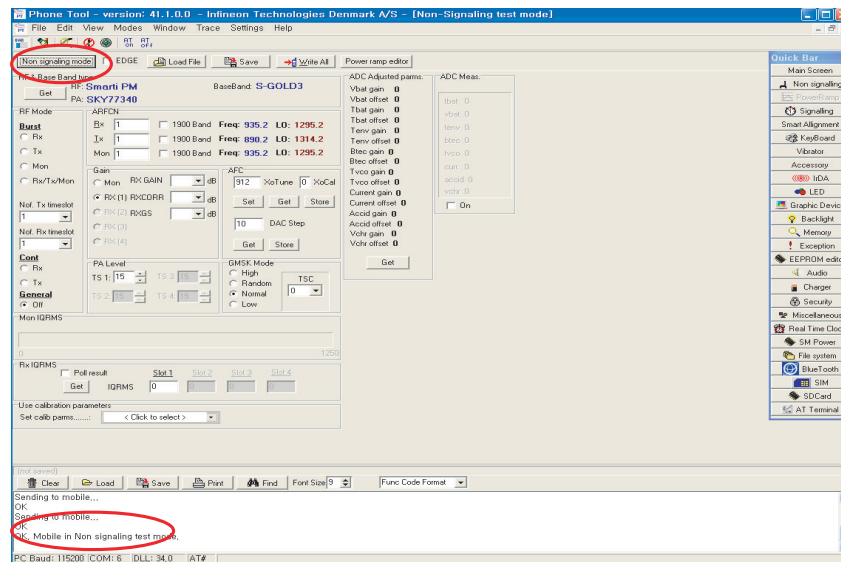
② Put the number of TX Channel in the ARFCN.
③ Select "Tx" in the RF mode menu and "PCL" in the PA Level menu.
④ Finally, Click "Write All" bar and try the efficiency test of Phone.
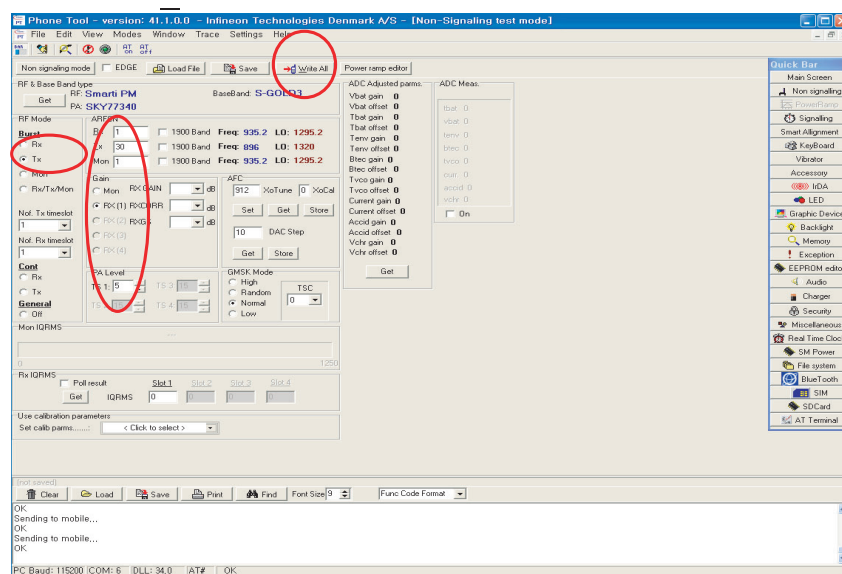
11.3 Rx Test

① Put the number of RX Channel in the ARFCN.

② Select "Rx" in the RF mode menu.

③ Finally, Click "Write All" bar and try the efficiency test of Phone.
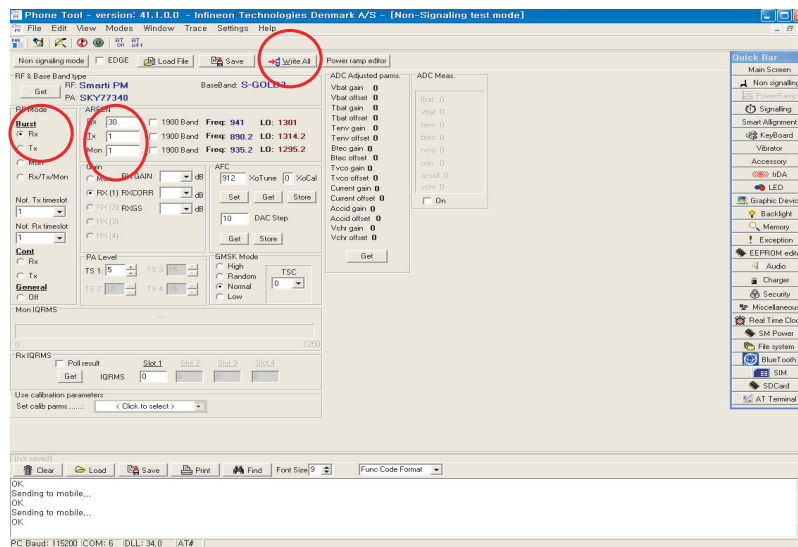
④ The Phone must be changed "normal mode" after finishing Test.

⑤ Change the Phone to "normal mode" and then Click the "Reset" bar.\
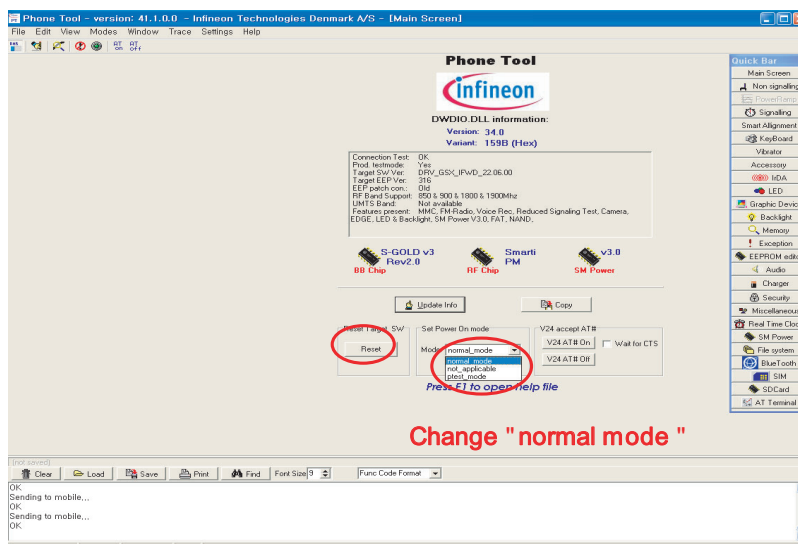
12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW
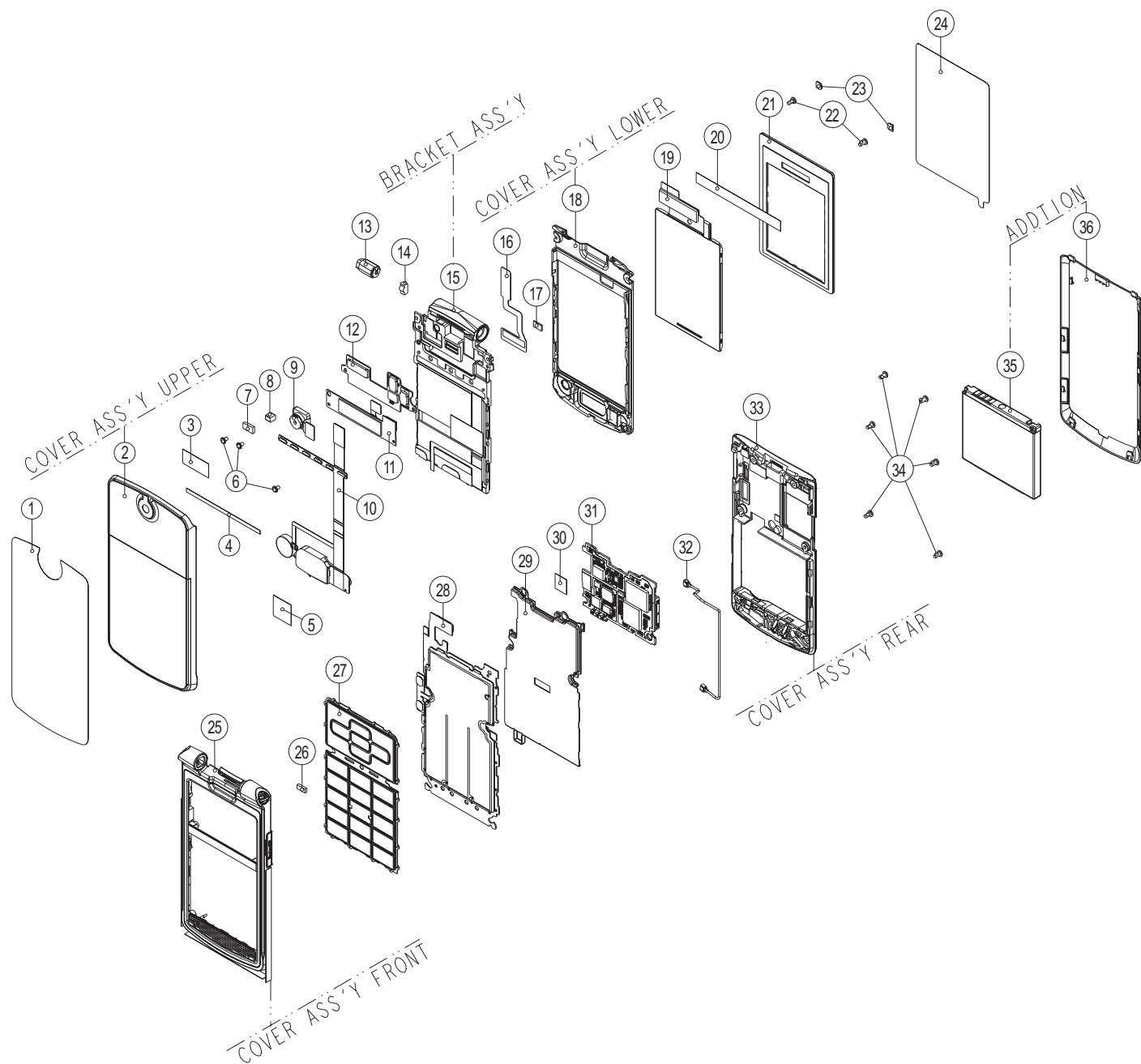
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
36	COVER_BATTERY	1	MCJA006740I	
35	BATTERY	1	- - - - - - - - - -	
34	SCREW MACHINE,BIND	6	GMEY000920I	
33	Cover_Ass'y_Rear	1	ACGM011530I	
32	RF_CABLE	1	SWCC000600I	
31	Pcb Assy,Main	1	SAFY027810	
30	INSULATOR_MAIN_PCB	1	MIDZ019240I	
29	shield_can_finger	1	MCBA003390I	
28	KEYPCB	1	SPCY014460I	
27	KEYPAD_MAIN	1	MKAG0009802	
26	PAD_FPCB_FRONT	1	MPBF003740I	
25	Cover_Ass'y_Front	1	ACGK011650I	
24	PROTECTION_MAIN_WINDOW	1	MTAB027770I	
23	CAP_SCREW_FOLDER	2	MCCZ002690I	
22	SCREW MACHINE,BIND	2	GMEY000920I	
21	WINDOW_MAIN	1	MWAC010260I	
20	GASKET_LCD	1	MGAD018020I	
19	LCD	1	SVLM002690I	
18	Cover_Ass'y_Lower	1	ACGH005390I	
17	PAD_FPCB_LCD	1	MPBF003640I	
16	FPCB_LCD	1	SPCY013840I	
15	Bracket_lower_Ass'y	1	ABFE000080I	
14	STOPPER	1	MSGB002400I	
13	HINGE	1	MHFD0014602	
12	SUB_PCB	1	SAJY003550I	
11	LED MODULE	1	SMZY001740I	
10	FPCB_FOLDER	1	SPCY013910I	
9	CAMERA	1	SVCY001820I	
8	GASKET_HINGE	1	MGAD017350I	
7	GASKET_LOWER	1	MGAD017140I	
6	SCREW MACHINE,BIND	3	GMEY001040I	
5	INSULATOR_FPCB	1	MIDZ019180I	
4	TAPE_LED_LIGHTING	1	MTAA015390I	
3	INSULATOR_CONN	1	MIDZ015270I	
2	Cover_Ass'y_Upper	1	ACGJ007110I	
1	PROTECTION_DECO	1	MTAB0219002	
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK

12. EXPLODED VIEW & REPLACEMENT PART LIST

ASSY
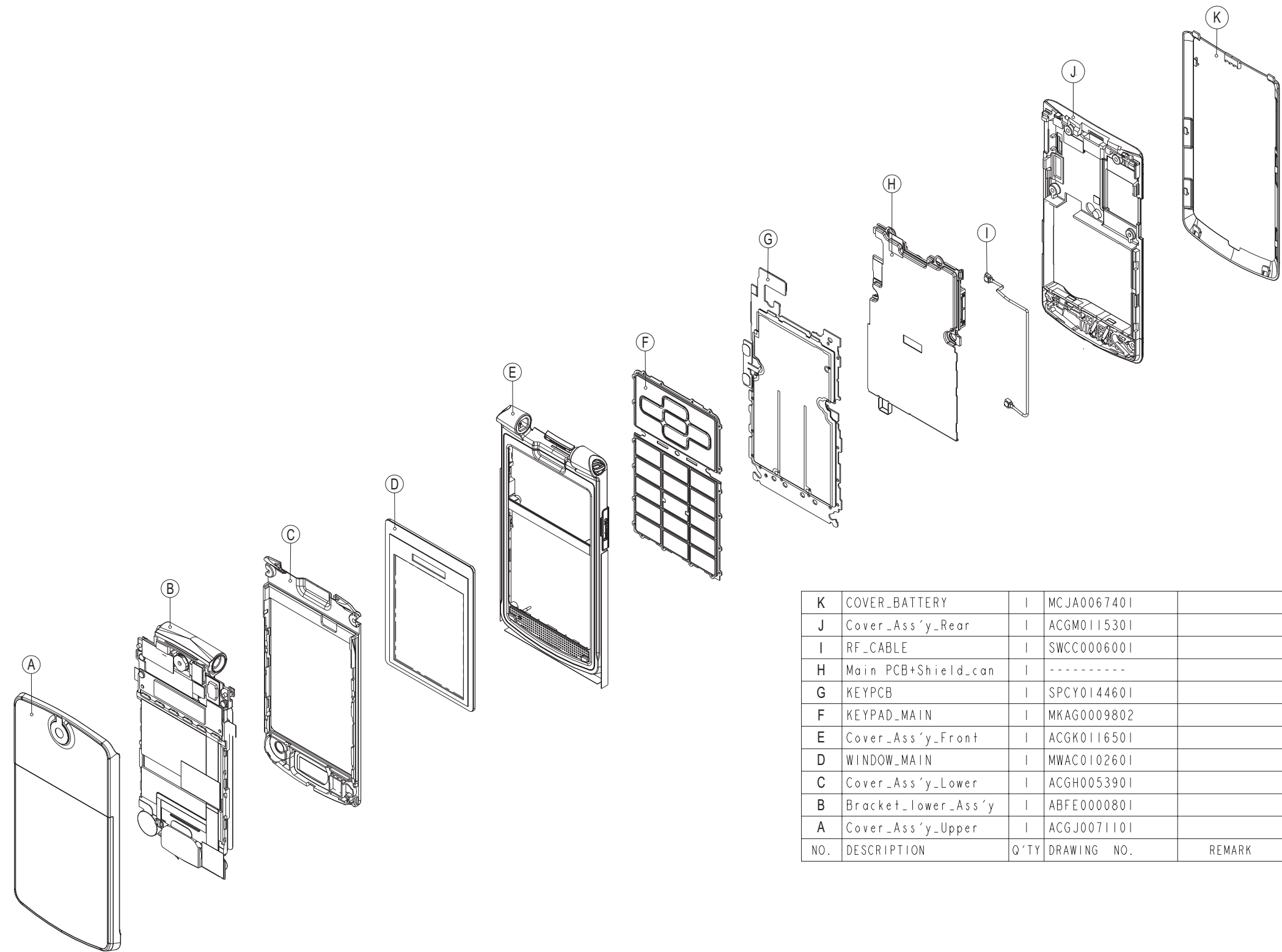
NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
K	COVER_BATTERY	1	MCJA006740I	
J	Cover_Ass'y_Rear	1	ACGM011530I	
I	RF_CABLE	1	SWCC000600I	
H	Main PCB+Shield_can	1	----------	
G	KEYPCB	1	SPCY014460I	
F	KEYPAD_MAIN	1	MKAG0009802	
E	Cover_Ass'y_Front	1	ACGK011650I	
D	WINDOW_MAIN	1	MWAC010260I	
C	Cover_Ass'y_Lower	1	ACGH005390I	
B	Bracket_lower_Ass'y	1	ABFE000080I	
A	Cover_Ass'y_Upper	1	ACGJ007110I	

12.2 Replacement Parts
<Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
1		GSM(FOLDER)	TGFF0101316		Sweet Pink	
2	AAAY00	ADDITION	AAAY0336101		Without Color	
3	MCJA00	COVER,BATTERY	MCJA0067401	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	K, 36
3	MLAA00	LABEL,APPROVAL	MLAA0058401	SINTERING, (empty), , , , ,	Without Color	
2	APEY00	PHONE	APEY0682801		Sweet Pink	
3	ACGG00	COVER ASSY,FOLDER	ACGG0093201		Sweet Pink	
4	ABFE00	BRACKET ASSY,SPEAKER	ABFE0000801	BRACKET LCD ASS'Y	Sweet Pink	B, 15
5	MBFF00	BRACKET,LCD	MBFF0019901	CASTING, Al Alloy, , , , ,	Sweet Pink	
6	MBIB00	BUSHING,HINGE	MBIB0007201	MOLD, POM LUCEL FW-700A, , , , ,	Black	
5	MIDZ00	INSULATOR	MIDZ0157601	COMPLEX, (empty), , , , ,	Without Color	
5	MMAA00	MAGNET,SWITCH	MMAA0008201	COMPLEX, (empty), , , , ,	Metal Silver	
5	MPBZ00	PAD	MPBZ0191501	COMPLEX, (empty), , , , ,	Without Color	
5	MPBZ01	PAD	MPBZ0191601	COMPLEX, (empty), , , , ,	Without Color	
5	MTAK00	TAPE,CAMERA	MTAK0008201	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ00	TAPE	MTAZ0201301	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ01	TAPE	MTAZ0201501	COMPLEX, (empty), , , , ,	Without Color	
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0053901		Sweet Pink	C, 18
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0043801	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	
5	MFBC00	FILTER,SPEAKER	MFBC0035801	COMPLEX, (empty), , , , ,	Without Color	
5	MPBU00	PAD,CONNECTOR	MPBU0033501	SINTERING, (empty), , , , ,	Without Color	
5	MTAB00	TAPE,PROTECTION	MTAB0243701	SINTERING, (empty), , , , ,	Without Color	
5	MTAK00	TAPE,CAMERA	MTAK0013701	SINTERING, (empty), , , , ,	Without Color	

LGE Internal Use Only

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MTAZ00	TAPE	MTAZ0201601	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ01	TAPE	MTAZ0201801	COMPLEX, (empty), , , , ,	Without Color	
5	MWAF00	WINDOW,LCD(SUB)	MWAF0041601	CUTTING, PMMA MR 200, , , , ,	Without Color	
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0071101		Sweet Pink	A, 2
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0050505	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	
6	MICZ00	INSERT	MICZ0019901		Without Color	
5	MDAE00	DECO,FOLDER(UPPER)	MDAE0043901	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	
5	MGAD00	GASKET,SHIELD FORM	MGAD0158601	COMPLEX, (empty), , , , ,	Without Color	
5	MLCD00	LENS,CAMERA	MLCD0008201	COMPLEX, (empty), , , , ,	Without Color	
6	MDAD00	DECO,CAMERA	MDAD0034001	PRESS, STS, , , , ,	Without Color	
6	MTAK00	TAPE,CAMERA	MTAK0004701	COMPLEX, (empty), , , , ,	Without Color	
6	MTAZ00	TAPE	MTAZ0200901	COMPLEX, (empty), , , , ,	Without Color	
5	MPBJ00	PAD,MOTOR	MPBJ0059001	SINTERING, (empty), , , , ,	Without Color	
5	MPBQ00	PAD,LCD(SUB)	MPBQ0034701	COMPLEX, (empty), , , , ,	Without Color	
5	MPBT00	PAD,CAMERA	MPBT0050501	COMPLEX, (empty), , , , ,	Without Color	
5	MPBT01	PAD,CAMERA	MPBT0060701	SINTERING, (empty), , , , ,	Without Color	
5	MPBU00	PAD,CONNECTOR	MPBU0015201	COMPLEX, (empty), , , , ,	Without Color	
5	MPBZ00	PAD	MPBZ0191401	COMPLEX, (empty), , , , ,	Without Color	
5	MTAA00	TAPE,DECO	MTAA0150101	COMPLEX, (empty), , , , ,	Without Color	
5	MTAA01	TAPE,DECO	MTAA0153701	COMPLEX, (empty), , , , ,	Black	
5	MTAA02	TAPE,DECO	MTAA0153801	COMPLEX, (empty), , , , ,	Black	
5	MTAB00	TAPE,PROTECTION	MTAB0210101	COMPLEX, (empty), , , , ,	Without Color	
5	MTAB01	TAPE,PROTECTION	MTAB0210201	COMPLEX, (empty), , , , ,	Without Color	

Level	Location No.	Description	Part Number	Spec	Color	Remark
5	MTAZ00	TAPE	MTAZ0201101	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ01	TAPE	MTAZ0201201	COMPLEX, (empty), , , , ,	Without Color	
4	ACGK00	COVER ASSY,FRONT	ACGK0116501		Sweet Pink	E, 25
5	MBIB00	BUSHING,HINGE	MBIB0006201	COMPLEX, (empty), , , , ,	Without Color	
5	MBJL00	BUTTON,SIDE	MBJL0061801	MOLD, ABS AF-308, , , , ,	Sweet Pink	
5	MCCC00	CAP,EARPHONE JACK	MCCC0056501	MOLD, ABS AF-308, , , , ,	Sweet Pink	
5	MCCG00	CAP,MULTIMEDIA CARD	MCCG0013701	MOLD, ABS AF-308, , , , ,	Sweet Pink	
5	MCJK00	COVER,FRONT	MCJK0090501	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	
6	MICC00	INSERT,FRONT(UPPER)	MICC0006701		Silver	
6	MICE00	INSERT,NUT	MICE0005601	COMPLEX, (empty), , , , ,	Without Color	
5	MDAC00	DECO,SIDE	MDAC0021501	COMPLEX, (empty), , , , ,	Without Color	
5	MDAG01	DECO,FRONT	MDAG0038801	MOLD, PC LUPOY SC-1004A, , , , ,	Sweet Pink	
5	MFBD00	FILTER,MIKE	MFBD0032401	SINTERING, (empty), , , , ,	Without Color	
5	MIDZ00	INSULATOR	MIDZ0178501	SINTERING, (empty), , , , ,	Without Color	
5	MPFD00	PLATE,GROUND	MPFD0005701	PRESS, Ni, , , , ,	Gold	
5	MSGB00	STOPPER,HINGE	MSGB0023501	COMPLEX, (empty), , , , ,	Without Color	
5	MSGY00	STOPPER	MSGY0022401	COMPLEX, (empty), , , , ,	Without Color	
5	MSGY01	STOPPER	MSGY0022501	COMPLEX, (empty), , , , ,	Without Color	
5	MTAB00	TAPE,PROTECTION	MTAB0277601	SINTERING, (empty), , , , ,	Without Color	
5	MTAB01	TAPE,PROTECTION	MTAB0209801	COMPLEX, (empty), , , , ,	Without Color	
5	MTAB02	TAPE,PROTECTION	MTAB0215401	COMPLEX, (empty), , , , ,	Without Color	
5	MTAZ00	TAPE	MTAZ0210501	COMPLEX, (empty), , , , ,	Black	
4	GMEY00	SCREW MACHINE,BIND	GMEY0009201	1.4 mm,3.5 mm,MSWR3(BK) ,B ,+ ,HEAD D=2.7mm	Black	
4	GMEY01	SCREW MACHINE,BIND	GMEY0010401	1.4 mm,2 mm,MSWR3(FN) ,N ,+ ,NYLOK	Silver	6
4	MCCZ00	CAP	MCCZ0026901	COMPLEX, (empty), , , , ,	Without Color	23

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MGAD00	GASKET,SHIELD FORM	MGAD0171401	SINTERING, (empty), , , , ,	Without Color	7
4	MGAD01	GASKET,SHIELD FORM	MGAD0173501	SINTERING, (empty), , , , ,	Without Color	8
4	MGAD02	GASKET,SHIELD FORM	MGAD0180201	SINTERING, (empty), , , , ,	Without Color	20
4	MHFD00	HINGE,FOLDER	MHFD0014602	7Kgf	Metal Silver	13
4	MIDZ00	INSULATOR	MIDZ0152701	COMPLEX, (empty), , , , ,	Without Color	3
4	MIDZ01	INSULATOR	MIDZ0191801	SINTERING, (empty), , , , ,	Without Color	5
4	MKAG00	KEYPAD,MAIN	MKAG0009802	RUSIA	Sweet Pink	F, 27
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0036401	SINTERING, (empty), , , , ,	Without Color	17
4	MPBF01	PAD,FLEXIBLE PCB	MPBF0037401	SINTERING, (empty), , , , ,	Without Color	26
4	MSGB00	STOPPER,HINGE	MSGB0024001	COMPLEX, (empty), , , , ,	Without Color	14
4	MTAA00	TAPE,DECO	MTAA0153901	COMPLEX, (empty), , , , ,	White	4
4	MTAB00	TAPE,PROTECTION	MTAB0219002		Without Color	1
4	MTAB01	TAPE,PROTECTION	MTAB0277701	SINTERING, (empty), , , , ,	Without Color	24
4	MWAC00	WINDOW,LCD	MWAC0102601	CUTTING, PMMA MR 200, , , , ,	Sweet Pink	D, 21
5	MPBG00	PAD,LCD	MPBG0083401	SINTERING, (empty), , , , ,	Without Color	
5	MTAD00	TAPE,WINDOW	MTAD0094501	SINTERING, (empty), , , , ,	Without Color	
6	ADCA00	DOME ASSY,METAL	ADCA0082901		Without Color	
3	ACGM00	COVER ASSY,REAR	ACGM0115301		Sweet Pink	J, 33
4	MCCF00	CAP,MOBILE SWITCH	MCCF0048401	COMPLEX, (empty), , , , ,	Without Color	
4	MCJN00	COVER,REAR	MCJN0087301	CASTING, Mg Alloy, , , , ,	Sweet Pink	
4	MLAB00	LABEL,A/S	MLAB0004801	PRINTING, (empty), , , , ,	Without Color	
4	MPBU00	PAD,CONNECTOR	MPBU0049601	SINTERING, (empty), , , , ,	Without Color	
4	MPBZ01	PAD	MPBZ0212401	SINTERING, (empty), , , , ,	Without Color	

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	MPBZ02	PAD	MPBZ0212501	SINTERING, (empty), , , , ,	Without Color	
4	MPBZ03	PAD	MPBZ0212601	SINTERING, (empty), , , , ,	Without Color	
3	GMEY00	SCREW MACHINE,BIND	GMEY0009201	1.4 mm,3.5 mm,MSWR3(BK) ,B ,+ ,HEAD D=2.7mm	Black	22, 34
3	MLAK00	LABEL,MODEL	MLAK0018616	KG110 MADE IN KOREA	Without Color	
4	MIDZ00	INSULATOR	MIDZ0192401	SINTERING, (empty), , , , ,	Without Color	30
5	MCBA	CAN,SHIELD	MCBA0033801	PRESS, STS, , , , ,	Silver	
5	MCBA00	CAN,SHIELD	MCBA0033901	PRESS, STS, , , , ,	Silver	29
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	
6	SC400	FRAME,SHIELD	MFEA0021901	PRESS, STS, , , , ,	Silver	

\<Main component\>

Level	Location No.	Description	Part Number	Spec	Color	Remark
4	SACY00	PCB ASSY,FLEXIBLE	SACY0081501	F-LCD		
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0075901	F-LCD		
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0051901	F-LCD		
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0036701	60 PIN,0.4 mm,ETC , ,H=1.0, Plug		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0064801	F-LCD		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0036701	60 PIN,0.4 mm,ETC , ,H=1.0, Plug		
6	SPCY00	PCB,FLEXIBLE	SPCY0138401	POLYI ,.6 mm,MULTI-6 , ,; , , , , , , , , ,		16
4	SACY01	PCB ASSY,FLEXIBLE	SACY0081601	F-FOLDER		
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0076001	F-FOLDER		
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0052001	F-FOLDER		
7	BAT100	BATTERY,CELL,LITHIUM	SBCL0001701	2 V,0.5 mAh,CYLINDER ,Reflow type BB, Max T 1.67, phi 4.8, Pb-Free		
7	C100	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0039501	20 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	R100	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
7	R101	RES,CHIP,MAKER	ERHZ0002401	12 Kohm,1/16W ,J ,1005 ,R/TP		
7	U100	IC	EUSY0331801	Photo sensor IC, 6 PIN, Vcc 1.8 to 5.5V ,6 PIN,R/TP ,Photo sensor IC		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0064901	F-FOLDER		
7	LD100	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		
7	LD101	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		
7	LD102	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		
7	LD103	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		
7	LD104	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD105	DIODE,LED,CHIP	EDLH0013403	WHITE ,ETC ,R/TP ,3.8*1.2*0.6T ,; ,[empty] ,2.9~3.2V ,20mA ,1200~1400mcd , ,126mW ,[empty] ,[empty] ,2P		
6	SPCY	PCB,FLEXIBLE	SPCY0139101	POLYI ,0.2 mm,MULTI-3 , ,; , , , , , , , , ,		10
4	SACY02	PCB ASSY,FLEXIBLE	SACY0081701	F-KEY		
5	SACB00	PCB ASSY, FLEXIBLE,INSERT	SACB0050401			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0076101	F-KEY		
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0052101	F-KEY		
7	C103	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
7	C107	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
7	C108	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C109	CAP,CHIP,MAKER	ECZH0000901	24 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
7	C110	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C111	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C113	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
7	CN100	CONNECTOR,I/O	ENRY0006801	18 PIN,0.4 mm,ETC , , ,; ,18 ,0.40MM ,ANGLE ,RECEPTACLE ,SMD ,R/TP ,		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0036201	44 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	L103	INDUCTOR,CHIP	ELCH0010402	270 nH,M ,1005 ,R/TP ,CHIP		
7	L104	INDUCTOR,CHIP	ELCH0010302	100 nH,J ,1608 ,R/TP ,chip coil		
7	L105	INDUCTOR,CHIP	ELCH0004710	15 nH,J ,1005 ,R/TP ,		
7	L106	INDUCTOR,CHIP	ELCH0004703	1 nH,S ,1005 ,R/TP ,		
7	MIC100	MICROPHONE	SUMY0010604	UNIT ,-38 dB,4.72*3.76 ,1.25T Bottom Silicon type ,; , , ,UNI ,1.5V , ,SMD		
7	R100	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
7	R101	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
7	SW110	CONN,RF SWITCH	ENWY0003901	,SMD , dB,		
7	U100	IC	EUSY0362601	SSON004 ,4 ,R/TP ,Hall IC ,; ,IC,CMOS		
7	VA100	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
7	VA101	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0065001	F-KEY		
7	LD100	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	LD101	DIODE,LED,CHIP	EDLH0013701	WHITE ,ETC ,R/TP ,SIDEVIEW ,; ,[empty] ,2.9~3.75 ,30mA , , ,120mW ,[empty] ,[empty] ,2P		
6	SPCY	PCB,FLEXIBLE	SPCY0144601	POLYI ,.45 mm,BUILD-UP 4 , ,; , , , , , , , , ,		G, 28
4	SAJY00	PCB ASSY,SUB	SAJY0035501			12
5	SAJE00	PCB ASSY,SUB,SMT	SAJE0028601			
6	SAJC00	PCB ASSY,SUB,SMT BOTTOM	SAJC0027301			
7	C100	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C104	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C105	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C106	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C107	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C108	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0018601	10 PIN,.4 mm,STRAIGHT , ,H=0.9, SOCKET		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0039601	20 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0034201	24 PIN,0.4 mm,ETC , , GB042 H=1.0, Socket		
7	CN104	CONNECTOR,FFC/FPC	ENQY0014901	35 ,0.3 mm,ETC , , ,; , ,0.30MM ,FPC ,STRAIGHT ,BOTH ,SMD ,R/TP ,[empty] ,		
7	L101	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
7	L102	INDUCTOR,CHIP	ELCH0001430	100 nH,J ,1005 ,R/TP ,PBFREE		
6	SAJD00	PCB ASSY,SUB,SMT TOP	SAJD0029501			
7	C109	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C111	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C112	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C113	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C114	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C115	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
7	C116	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C117	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
7	C118	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
7	C119	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN103	CONNECTOR,BOARD TO BOARD	ENBY0036801	60 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	R106	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
7	R107	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
7	R108	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
7	R109	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	U100	IC	EUSY0160401	SOT-23 ,3 PIN,R/TP ,DC MOTOR DRIVER / INTEGERATED RELAY		
7	U101	IC	EUSY0360901	CSP ,30 ,R/TP ,DCDC/Charge pump/ALC/LDO etc ,; ,IC,Charge Pump		
6	SPJY	PCB,SUB	SPJY0055201	FR-4 ,0.5 mm,BUILD-UP 4 , ,; , , , , , , , , , ,		
4	SJMY00	VIBRATOR,MOTOR	SJMY0007107	3 V,80 mA,10*3.0t ,12mm ,; ,3V , , , , , , ,		
4	SMZY00	MODULE,ETC	SMZY0017401	LED matrix ,; ,Module Assembly		11
4	SUSY01	SPEAKER	SUSY0027601	ASSY ,8 ohm, dB, mm, ,; , , , , , ,20*12, 3.3T ,WIRE		
4	SVCY00	CAMERA	SVCY0018201	CMOS ,MEGA ,3M FF SS-LSI(1/4"), 8.5x8.5x4.9,FPCB		9
4	SVLM00	LCD MODULE	SVLM0026901	MAIN ,240*320 ,40*57*1.5t ,262k ,TFT ,TM ,Toshiba(T6K85) ,		19
4	SWCC00	CABLE,COAXIAL	SWCC0006001	79.5 mm, LINE, ,; ,[empty] ,[empty] ,[empty] , ,[empty] , ,[empty]		I, 32
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0039701	3.0 ,-2.0 dBd,, ,internal, GSM900/1800/1900 ,; ,TRIPLE ,-2.0 ,50 ,3.0		
3	SAFY00	PCB ASSY,MAIN	SAFY0278102			31
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0090301			
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0212701			
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0114001			
6	ANT400	CONN,RF SWITCH	ENWY0004001	,SMD ,1.3 dB,		
6	ANT401	ANTENNA,GSM,FIXED	SNGF0040701	3.0 ,-5.0 dBd,, ,internal, bluetooth chip, 8*2*2 ,; ,SINGLE ,-5.0 ,50 ,3.0		
6	C201	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C206	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C229	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C230	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C231	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C232	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C233	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C234	CAP,CERAMIC,CHIP	ECCH0000393	22000000 pF,6.3V ,M ,X5R ,HD ,2012 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,1.25 mm		
6	C235	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C236	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C237	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C238	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C240	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C241	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C242	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C243	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C244	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C245	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C248	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C250	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C251	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C253	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C254	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C255	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C256	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C257	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C304	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000179	22 nF,16V ,K ,X5R ,HD ,1005 ,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C307	CAP,CERAMIC,CHIP	ECCH0005604	10000000 pF,6.3V ,M ,X5R ,TC ,1608 ,R/TP , , ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,[empty] ,0.8 mm		
6	C308	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C326	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C331	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C406	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	CN201	CONNECTOR,ETC	ENZY0016301	3 PIN,3.0 mm,ETC , ,H-2.0		
6	CN301	CONNECTOR,BOARD TO BOARD	ENBY0036101	44 PIN,0.4 mm,ETC , ,H=1.0, Plug		
6	CN302	CONNECTOR,BOARD TO BOARD	ENBY0036801	60 PIN,0.4 mm,ETC , ,H=1.0, Socket		
6	D201	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		
6	D202	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	D203	DIODE,SWITCHING	EDSY0009901	ESC ,80 V,300 A,R/TP ,1.6*0.8*0.6(t)		
6	FB201	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB202	FILTER,BEAD,CHIP	SFBH0001003	220 ohm,2012 ,		
6	FB301	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB302	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB305	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB306	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB307	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FL301	FILTER,EMI/POWER	SFEY0007101	SMD ,1CH,1608Feedthru ESD/EMI filter for power Pb-free		
6	FL302	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL303	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
6	FL304	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL305	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
6	FL306	FILTER,EMI/POWER	SFEY0010501	SMD ,SMD ,18 V,4ch. EMI_ESD Filter (100Ohm,15pF), Pb-free		
6	FL307	FILTER,EMI/POWER	SFEY0011401	SMD ,SMD, 18V, 4ch, EMI_ESD Filter (100 Ohm, 7.5pF)		
6	L201	INDUCTOR,SMD,POWER	ELCP0006703	10 uH,M ,3.2*2.6*1.0 ,R/TP ,		
6	L202	INDUCTOR,SMD,POWER	ELCP0005104	10 uH,M ,3.8*3.8*1.8 ,R/TP ,power inductor/ 850mA		
6	L305	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
6	L406	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	R201	RES,CHIP,MAKER	ERHZ0000454	27 Kohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R204	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R205	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R207	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R220	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R222	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R223	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R224	RES,CHIP,MAKER	ERHZ0000224	16 Kohm,1/16W ,F ,1005 ,R/TP		
6	R225	RES,CHIP	ERHY0000129	18K ohm,1/16W,F,1005,R/TP		
6	R301	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R302	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000445	220 Kohm,1/16W ,J ,1005 ,R/TP		
6	R304	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000469	36 ohm,1/16W ,J ,1005 ,R/TP		
6	R318	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R319	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R320	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R321	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R323	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R324	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R326	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R328	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R329	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R330	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R331	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R332	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R333	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R334	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R335	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	S301	CONN,SOCKET	ENSY0018601	16 PIN,ETC , ,2.54 mm,UIM 8P, Micro SD Dupli-Socket		
6	SW400	CONN,RF SWITCH	ENWY0004401	,SMD , dB,H=2.2		
6	U202	IC	EUSY0323901	BGA PG-WFSGA ,121 PIN,R/TP ,SMPOWER3		
6	U203	IC	EUSY0102802	Micropak ,8 PIN,R/TP ,Daul 2 input AND gate,		
6	U204	IC	EUSY0351601	DFN ,12 PIN,R/TP ,Dual Charger IC (Bypass) ,; ,IC,Charger		
6	U301	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	VA301	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
6	VA309	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	VA310	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0112501			
6	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C108	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C110	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C111	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C113	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C114	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C115	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C116	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C118	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C120	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C125	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C126	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C127	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C129	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C130	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C131	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C132	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C133	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C136	CAP,CHIP,MAKER	ECZH0003103	0.1 uF,10V ,K ,X7R ,HD ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C141	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C222	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C249	CAP,CERAMIC,CHIP	ECCH0000198	2.2 uF,6.3V ,M ,X5R ,TC ,1005 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C327	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C401	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C402	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C403	CAP,TANTAL,CHIP	ECTH0004804	33 uF,10V ,M ,L_ESR ,3216 ,R/TP		
6	C404	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C410	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C411	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C417	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C418	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C422	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C423	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C424	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C425	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C426	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C427	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C428	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C429	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	C430	CAP,CERAMIC,CHIP	ECCH0000901	2.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C431	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C432	CAP,CERAMIC,CHIP	ECCH0000151	4.7 nF,25V,K,X7R,HD,1005,R/TP		
6	C433	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C434	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C435	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C436	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C437	CAP,CERAMIC,CHIP	ECCH0000163	47 nF,10V,K,X5R,HD,1005,R/TP		
6	C438	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C439	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C440	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C443	CAP,CHIP,MAKER	ECZH0001216	220 nF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C444	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C446	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C447	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C448	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C449	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C450	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C451	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C452	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C460	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	FB101	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB102	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB103	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB104	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB303	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB304	FILTER,BEAD,CHIP	SFBH0008102	1800 ohm,1005 ,Bead		
6	FB309	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FB420	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FL400	FILTER,SEPERATOR	SFAY0008602	850,900 ,1800.1900 , dB, dB, dB, dB,4532 ,GSM QUAD FEM FOR RENESAS RFIC		
6	L301	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	L302	INDUCTOR,CHIP	ELCH0003842	100 nH,J ,1005 ,R/TP ,MLCI		
6	L400	INDUCTOR,CHIP	ELCH0004714	18 nH,J ,1005 ,R/TP ,		
6	L401	INDUCTOR,CHIP	ELCH0004714	18 nH,J ,1005 ,R/TP ,		
6	L402	INDUCTOR,CHIP	ELCH0009109	6.8 nH,J ,1005 ,R/TP ,chip coil		
6	L403	INDUCTOR,CHIP	ELCH0009103	5.6 nH,J ,1005 ,R/TP ,		
6	L404	INDUCTOR,CHIP	ELCH0005015	6.8 nH,S ,1005 ,R/TP ,		
6	L405	INDUCTOR,CHIP	ELCH0003820	3 nH,S ,1005 ,R/TP ,PBFREE		
6	M1	MODULE,ETC	SMZY0019201	Bluetooth+FM Module(BCM2048B0,6.3x5.3x1.4) ,; ,Bluetooth		
6	Q201	TR,BJT,NPN	EQBN0017601	VMT3 ,0.15 W,R/TP ,		
6	Q202	TR,BJT,NPN	EQBN0007601	SOT-23 ,0.15 W,R/TP ,EMT3		
6	Q203	TR,BJT,NPN	EQBN0017601	VMT3 ,0.15 W,R/TP ,		
6	R101	RES,CHIP,MAKER	ERHZ0000434	1 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP	ERHY0000166	390 Kohm,1/16W ,F ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000204	100 Kohm,1/16W ,F ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000465	3300 ohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R116	RES,CHIP,MAKER	ERHZ0000529	1.5 Kohm,1/16W ,J ,1005 ,R/TP		
6	R209	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000438	20 Kohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000534	8.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000534	8.2 ohm,1/16W ,J ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R214	RES,CHIP	ERHY0000298	3.3M ohm,1/16W,J,1005,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R216	RES,CHIP	ERHY0000298	3.3M ohm,1/16W,J,1005,R/TP		
6	R217	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No.	Description	Part Number	Spec	Color	Remark
6	R305	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R312	RES,CHIP,MAKER	ERHZ0000469	36 ohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R316	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R317	RES,CHIP,MAKER	ERHZ0000505	680 ohm,1/16W ,J ,1005 ,R/TP		
6	R322	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R325	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R327	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R410	RES,CHIP	ERHY0000185	820 ohm,1/16W ,F ,1005 ,R/TP		
6	R411	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R412	RES,CHIP,MAKER	ERHZ0000206	10 ohm,1/16W ,F ,1005 ,R/TP		
6	R430	RES,CHIP,MAKER	ERHZ0000244	22 Kohm,1/16W ,F ,1005 ,R/TP		
6	R431	THERMISTOR	SETY0006301	NTC ,10000 ohm,SMD ,1005, 3350~3399k, J, R/T, PBFREE		
6	SPFY	PCB,MAIN	SPFY0179201	FR-4 ,0.8 mm,STAGGERED-8 ,KF350 MAIN ,; , , , , , , , , , ,		
6	U101	IC	EUSY0335803	FBGA ,107 PIN,ETC ,FULLY 1.8V 1G(LB/64Mx16) NAND+512M(DDR/8Mx4x16) SDRAM ,; ,IC,MCP		
6	U102	IC	EUSY0322801	BGA ,293 PIN,R/TP ,Multimedia Extension EDGE BB		
6	U201	IC	EUSY0360201	CSP ,20 ,R/TP ,Class D(mono) + Capless HP + A/S ,; ,IC,Audio Sub System		
6	U400	PAM	SMPY0017901	dBm, %, A, dBc, dB,5x5 ,SMD ,IFX Linear Edge ,; , , , , , , , , ,R/TP ,R/TP ,		
6	U401	IC	EUSY0274801	VQFN ,40 PIN,R/TP ,GPRS, EDGE TRANSCEIVER		
6	VA201	VARISTOR	SEVY0004101	5.6 V, ,SMD ,360pF, 1005		
6	VA302	VARISTOR	SEVY0003601	5.6 V, ,SMD ,100pF, 1005		
6	X101	X-TAL	EXXY0024301	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,-40'C ~ +85'C, C0 1.05pF, C1 fF ,; ,32.768 ,20PPM ,12.5 , , ,SMD ,R/TP		
6	X400	X-TAL	EXXY0018404	26 MHz,10 PPM,8 pF,40 ohm,SMD ,3.2*2.5*0.6 ,12ppm at -30'C ~ +85'C, C0 1.0pF, C1 3.6fF ,; ,26 ,10PPM ,8 , , ,SMD ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Spec	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0096502	3.7 V,800 mAh,1 CELL,PRISMATIC ,463443 WW Label ,; , , , ,PRISMATIC , , ,BLACK , ,	Black	
3	SGDY00	DATA CABLE	SGDY0010904	; ,[empty] ,[empty] ,[empty] ,18 ,BLACK ,6.2mm Plug Datacable ,[empty]		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003722	; ,RMS 20mW(0.56V,RMS) ,16Ohm +- 2.4Ohm 1KHZ ,116dB+-3dB 1KHZ,3mW ,116dB 1KHZ ,96dB 100HZ ,[empty] ,[empty] ,18P MMI CONNECTOR ,WHITE, ,Earphone,Stereo		
3	SSAD00	ADAPTOR,AC-DC	SSAD0028501	100-240V ,5060 Hz,5.6 V,0.4 A,GOST ,AC-DC Adaptor ,; ,150Vac~350Vac ,5.6V (+/-0.8V) ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		
		ADAPTOR,AC-DC	SSAD0028502	100-240V ,5060 Hz,5.6 V,.4 A,GOST ,AC-DC Adaptor ,; ,150Vac~350Vac ,5.6V +/-0.8V ,400mA ,5060 , ,WALL 2P ,I/O CONNECTOR ,		

Note